

000001

# REQUEST FOR COUNCIL ACTION

## CITY OF SAN DIEGO

 1. CERTIFICATE NUMBER  
(FOR AUDITOR'S USE) 200  
1/28

 TO:  
City Attorney

 2. FROM (ORIGINATING DEPARTMENT):  
Debt Management

 3. DATE:  
01/10/2008

 4. SUBJECT:  
Variable Rate Debt and Derivatives Workshop for the City Council

 5. PRIMARY CONTACT (NAME, PHONE & MAIL STA.)  
Lakshmi Kommi, x66928, 7B

 6. SECONDARY CONTACT (NAME, PHONE & MAIL STA.)  
Ruwen Liu, x55832, 7B

 7. CHECK BOX IF REPORT TO  
COUNCIL IS ATTACHED ☐

### 8. COMPLETE FOR ACCOUNTING PURPOSES

FUND				
DEPT.				
ORGANIZATION				
OBJECT ACCOUNT				
JOB ORDER				
C.I.P. NUMBER				
AMOUNT				

 9. ADDITIONAL INFORMATION / ESTIMATED COST:  
See Executive Summary.

### 10. ROUTING AND APPROVALS

ROUTE (#)	APPROVING AUTHORITY	APPROVAL SIGNATURE	DATE SIGNED	ROUTE (#)	APPROVING AUTHORITY	APPROVAL SIGNATURE	DATE SIGNED
1	ORIGINATING DEPARTMENT	<i>Lakshmi Kommi</i>	1/10/08	8			
2	LIAISON OFFICE	<i>[Signature]</i>	1/11/08	9			
3	CFO	<i>[Signature]</i>	1/14/08	10			
4	COO	<i>[Signature]</i>	1/14/08	11			
5	CITY ATTORNEY	<i>[Signature]</i>	1/14/08	DOCKET COORD: <i>[Signature]</i> 1/17/08 COUNCIL LIAISON: <i>[Signature]</i> COUNCIL PRESIDENT <input checked="" type="checkbox"/> SPOB <input type="checkbox"/> CONSENT <input checked="" type="checkbox"/> ADOPTION <i>[Signature]</i> <input type="checkbox"/> REFER TO: _____ COUNCIL DATE: 1/28/08			
6	ORIGINATING DEPARTMENT	<i>Lakshmi Kommi</i>	1/15/08				
7							

 11. PREPARATION OF: ☒ RESOLUTION(S) ☐ ORDINANCE(S) ☐ AGREEMENT(S) ☐ DEED(S)

Authorize the Mayor and/or his designee to develop the City of San Diego Variable Rate Debt and Derivatives Policy.

#### 11A. STAFF RECOMMENDATIONS:

Authorize the requested action.

#### 12. SPECIAL CONDITIONS:

COUNCIL DISTRICT(S): All districts will be served.

COMMUNITY AREA(S): Citywide.

ENVIRONMENTAL IMPACT: This activity is not a "project" and is therefore exempt from CEQA pursuant to state CEQA Guidelines Section 15060(c)(2).

HOUSING IMPACT: None with this action.

OTHER ISSUES: None.

**EXECUTIVE SUMMARY SHEET  
CITY OF SAN DIEGO**

DATE ISSUED: \_\_\_\_\_ REPORT NO: \_\_\_\_\_  
ATTENTION: Council President and City Council  
ORIGINATING DEPARTMENT: Department of Finance – Debt Management  
SUBJECT: Variable Rate Debt and Derivatives Workshop for the City Council  
COUNCIL DISTRICT(S): All Districts will be served  
CONTACT/PHONE NUMBER: Lakshmi Kommi, x66928, 7B

**REQUESTED ACTION:**

Authorize the Mayor and/or his designee to develop the City of San Diego Variable Rate Debt and Derivatives Policy.

**STAFF RECOMMENDATION:**

Authorize the requested action.

**EXECUTIVE SUMMARY:**

On November 6, 2007, the City Council adopted Resolution R-803152 formally adopting the City of San Diego Debt Policy ("Debt Policy"). Said Resolution also required that the Mayor shall, by the end of Fiscal Year 2008 cause a Variable Rate Debt and Derivatives Policy to be brought forward to the Budget and Finance Committee for inclusion as an appendix to the Debt Policy. This Variable Rate and Derivatives Workshop will enable the City Council to understand the use of variable rate method and derivative instruments for City bond issuances, and mechanics and operational considerations in developing and implementing an effective variable rate program. This workshop will be conducted at 2:00 p.m. on January 28, 2008. This workshop will be conducted by Jim Bemis of Montague, DeRose and Associates (MDA) and City Debt Management staff. MDA, having served as the Financial Advisor on various City financing transactions, has extensive experience in assisting municipalities in managing variable rate debt and derivatives activities. Advance reference materials for the workshop are attached.

If the City Council consents, an action item is herewith recommended that the City Council authorize the Mayor and/or his designee to develop the City of San Diego Variable Rate and Derivatives Policy to govern future implementation of such instruments. Upon completion, said policy will be presented to the City Council by the end of Fiscal Year 2008, in accordance with Resolution R-803152, for inclusion as an appendix to the City's Debt Policy.

**FISCAL CONSIDERATIONS:**

No fiscal impact.

000004

PREVIOUS COUNCIL and/or COMMITTEE ACTION:

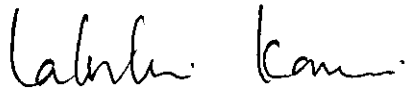
The City Council adopted Resolution R-803152 formally adopting the City of San Diego Debt Policy.

COMMUNITY PARTICIPATION AND PUBLIC OUTREACH EFFORTS:

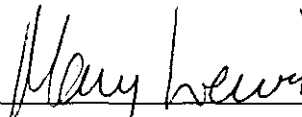
Not Applicable.

KEY STAKEHOLDERS AND PROJECTED IMPACTS:

Not Applicable.



Lakshmi Kommi  
Debt Management Director



Mary Lewis  
Chief Financial Officer

RESOLUTION NUMBER R-\_\_\_\_\_

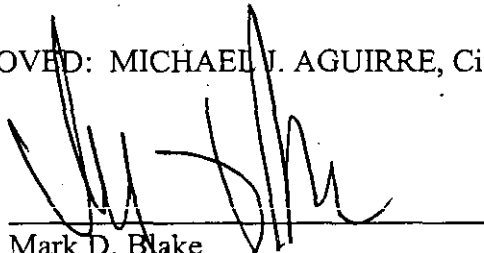
DATE OF FINAL PASSAGE \_\_\_\_\_

BE IT RESOLVED, by the Council of the City of San Diego that the Mayor, or his designee, is hereby authorized and directed to develop or cause to be developed a Variable Rate Debt and Derivatives Policy.

BE IT FURTHER RESOLVED, that the Mayor, or his designee, is further directed to return to the Council for consideration of such policy as soon as practical.

APPROVED: MICHAEL J. AGUIRRE, City Attorney

By

  
Mark D. Blake  
Chief Deputy City Attorney

MDB:pev  
01/15/08  
Or.Dept:FM  
R-2008-595

I hereby certify that the foregoing Resolution was passed by the Council of the City of San Diego, at this meeting of \_\_\_\_\_.

ELIZABETH S. MALAND  
City Clerk

By \_\_\_\_\_  
Deputy City Clerk

Approved: \_\_\_\_\_  
(date)

\_\_\_\_\_  
JERRY SANDERS, Mayor

Vetoed: \_\_\_\_\_  
(date)

\_\_\_\_\_  
JERRY SANDERS, Mayor

Contact	Phone
<b>New York</b>	
Bill Fitzpatrick	1.212.553.4104
Naomi Richman	1.212.553.0014
Gail Sussman	1.212.553.0819
Robert Kurtter	1.212.553.4453
John Nelson	1.212.553.4096
Lisa Washburn	1.212.553.4133
Florence Zeman	1.212.553.4836
<b>Dallas</b>	
Douglas Benton	1.214.220.4381
<b>San Francisco</b>	
Kenneth Kurtz	1.415.274.1737
Eric Hoffmann	1.415.274.1702
Brad Spielman	1.415.274.1719

## Evaluating the Use of Interest Rate Swaps by U.S. Public Finance Issuers<sup>1</sup>

*Strengths and Risks of Interest Rate Hedges, Management Capacity, and Legal Terms are Evaluated in the Context of the Issuer's Overall Credit Position*

### Introduction

Over the course of the past decade, interest rate swaps and other derivatives have become firmly established in U.S. public finance. Moody's reviews an issuer's use of swaps and other derivatives as a part of our assessment of the issuer's credit strength. When combined with prudent risk management, swaps can improve financial performance by lowering borrowing costs or producing cash flows more likely to meet an issuer's financial objectives. On the other hand, swaps involve certain potential risks that should be evaluated and monitored. Because the impact of interest rate derivatives may change over time, the issuer's capacity to manage the portfolio is important in assessing any potential effects on credit quality. For financially sophisticated, highly rated issuers who are frequent users of derivatives, Moody's analysts may not always conduct a detailed review of each individual trade at the time of a financing, and focus instead on the issuer's swap policies and overall book of swaps. In contrast, when an individual swap can materially affect the credit quality of an issuer or financing, we will perform a detailed review of each swap transaction.

Municipal issuers use a variety of different kinds of interest rate derivatives; some of the most common examples are described in Appendix A. The majority of interest rate derivatives Moody's has reviewed have been floating-to-fixed rate interest rate swaps, and therefore this form of contract will at times serve as the focus of discussion in this report.

Moody's has a three-factor approach evaluating an issuer's or a transaction's exposure to interest rate swaps. The steps taken are:

#### Factor #1: Swap Management Practices

#### Factor #2: Potential Financial Impact of Swaps

- A. Cash Flows and/or Net Revenues
- B. Balance Sheet
- C. Counterparty
- D. Future Financial Management

#### Factor #3: Legal Documentation

This report provides a high-level summary of our three-factor methodology. It then discusses the context in which Moody's reviews interest rate swaps, and provides a more detailed discussion of the three factors.

1. This report was sponsored by Moody's Public Finance Credit Committee, which sets policies that govern the rating process in Moody's Public Finance Group. The Committee was appointed by Moody's Credit Policy Committee to promote transparency and consistency in Public Finance rating practices. The membership of the Committee includes senior managers and analysts in the Public Finance Group, as well as representatives of Moody's Corporate, Structured Finance, and Credit Policy groups. For additional information on Moody's Credit Policy function, please email [cpc@moody.com](mailto:cpc@moody.com).



Appendices include the following additional materials:

- An overview of common forms of interest rate swaps in public finance (Appendix A, p.16)
- An example of information included in a new issue report (Appendix B, p. 23)
- A sample swap guide used in Rating Committee (Appendix C, p. 24)
- Moody's basic model for assessing basis and tax risk (Appendix D, p. 27)

### What's New?

This Methodology is descriptive of Moody's past and current practice, and brings together in one place various factors related to interest rate swaps. The following are some key features discussed in greater detail:

- **Effective Swap Policies** — p. 7: A summary of issues that may be covered in swap policies is included in a discussion of management practices
- **Measuring Basis Risk** — p. 8, Appendix D on p. 27: High and low interest rate scenarios that serve as a starting point for measuring basis risk and tax risk when appropriate
- **Measuring Termination Risk** — p. 9: A summary of techniques that are used to evaluate potential exposure to early termination risk
- **Counterparty Ratings** — p. 12: Moody's views on ratings of swap counterparties

## Swap Methodology — Summary

This section of the report provides a high level overview of Moody's approach to analyzing interest rate swaps in the U.S. public finance market. For a more detailed discussion of these factors, please refer to the sections beginning on page 6.

### FACTOR 1 — SWAP MANAGEMENT PRACTICES:

The use of swaps adds an additional level of complexity to an issuer's financial management. Moody's assesses the ability of the issuer to identify the potential risks and rewards of derivatives transactions and the issuer's strategy for managing those risks over time, as discussed in the section entitled "Management Practices." Because the impact of derivatives may change over time, in some cases the ability to monitor swap performance and respond effectively to future contingencies may be just as significant as identifying the risks at the outset of the contract.

### FACTOR 2 — FINANCIAL IMPACT OF SWAPS:

Interest rate derivatives are reviewed as part of an issuer's overall financial position, considering both the potential advantages and the potential risks.

#### Potential benefits

Accessing the swap market greatly increases the array of options available to municipal entities in the capital markets. Using swaps can in some circumstances reduce costs or improve cash flows, thereby increasing resources available for debt service and other public purposes and contributing to the issuer's mission. Issuers may consider a variety of derivatives contracts as part of different strategies. Examples include the following:

- **Reducing borrowing costs**, by using floating-to-fixed rate swaps combined with variable rate bonds to achieve costs lower than those available with fixed-rate bonds, or by using fixed-to-floating rate swaps to create synthetic floating rate debt and achieve lower costs without external liquidity or remarketing support.
- **Improving cash flows**, by using basis swaps where the issuer expects the payments received from the counterparty to be greater, over time, than the payments made to the counterparty.
- **Locking in current rates** for future transactions, through forward-starting swaps or swaptions.
- **Matching assets and liabilities**, by using derivatives so that fixed-rate debt is matched with fixed-rate assets and floating-rate debt is matched with floating-rate assets.

Moody's takes the potential benefits of swap transactions into account, recognizing that in the proper circumstances swaps can have a positive effect on an issuer's financial position.

### **Potential Risks**

On the other hand, interest rate swaps involve certain risks that should be considered in credit analysis. To some extent, these same factors are present in managing other aspects of debt portfolios. **Enumeration of these risks here does not imply that Moody's views swaps as the only source of such risk.** The potential risk factors that Moody's considers when evaluating swaps include the following (The risk factors are organized according to the four sub-factors relating to financial impact, although there will be overlap among these categories.):

#### ***Cash flows and/or net revenues:***

1. **Basis Risk:** the risk that variable rate payments received will be less than variable rate payments they were designed to offset, because the variable rate payments received and the variable rate payments owed are based on different indexes, and the ratio between those indexes changes over time.
2. **Tax Risk:** the risk that the issuer's costs will rise because federal income tax rates fall, or because the tax exemption for municipal debt is eliminated or is modified in a way that reduces its value.
3. **Yield Curve Risk (in particular for Constant Maturity Swaps (CMS)):** The risk that the issuer's cash flow will be adversely affected because the slope of the yield curve is not as the issuer anticipated when entering into the swap. This is an aspect of basis risk for CMS swaps and may affect termination value for CMS and other swaps.
4. **Amortization Mismatch:** the risk that the notional amount of the swap and the outstanding principal amount of the debt intended to be hedged will no longer be equal. Such mismatch may be a feature of the transaction at its inception or may be caused by subsequent events, such as redemption of bonds before maturity or termination of the swap before bond maturity.

#### ***Balance sheet:***

5. **Termination Risk:** the risk that the municipal issuer will be required to make a payment based on the market value of the swap in connection with an unforeseen termination of the swap, at a time when the market value is negative to the issuer.
6. **Collateral Posting Risk:** the risk that the issuer will be required to post collateral, upon a downgrade of its credit rating or other trigger event at a time when the market value is negative to the issuer.

#### ***Counterparty:***

7. **Counterparty Risk:** the risk that the counterparty will no longer perform its obligations under the contract, or that the counterparty's credit quality will decline to the point where there is uncertainty about its ability to perform.

#### ***Future financial management:***

8. **Market Access Risk:** the risk that the issuer will be unable to obtain derivatives contracts when needed in the future on reasonably favorable terms, including new derivatives upon early or scheduled termination of existing hedges ("Rollover Risk").
9. **Loss of Flexibility:** the risk that a swap contract will limit the issuer's debt management options in the future due to an inability to modify or terminate the swap without cost.
10. **Management Complexity.** The risk that, for some issuers, derivatives may add a level of complexity to financial management that will require ongoing commitment of additional resources.

There is overlap among the factors listed; for example, tax risk may be considered a form of basis risk for some swaps, and yield curve risk may be viewed as an aspect of the basis risk of CMS swaps. This discussion, and the list above, may not be exhaustive, and other benefits and risks may arise.

### **Elements of Financial Impact**

The enumerated factors are considered in evaluation of four sub-factors that comprise financial impact:

- **Cash Flows/net revenues:** the potential positive or negative effect on future revenues
- **Balance Sheet:** potential balance sheet effects of future events
- **Counterparty:** the potential for failure of performance by the counterparty
- **Financial Management:** other potential constraints on financial management

**FACTOR 3 — LEGAL DOCUMENTATION:**

Moody's reviews legal documentation of a swap transaction to understand the terms of the transaction, the risks taken on by the parties, and the remedies available to them. These documents may include, among others, the ISDA Master Agreement, Schedule, Confirmation and Credit Support Annex.

**Moody's Evaluates Swaps in the Context of Broader Credit Analysis**

Moody's incorporates the strengths and weaknesses of interest rate swaps into bond ratings, in the context of the issuer's overall credit position. This process occurs in two contexts: first, when the issuer enters into a swap in connection with debt issuance where a rating is requested, and second, in periodic reviews of ratings.

**Evaluating the Significance of Swaps to an Individual Rating**

The issuer's use of interest rate swaps is one of the factors that are considered in assigning a rating. Moody's evaluates the potential impact of derivatives contracts on an issuer's overall financial strength, in light of the issuer's capacity to manage the derivatives portfolio, identify issues and respond to potential changes.

Public finance involves a wide variety of credits, and the significance of swaps varies among sectors. For example, state or local government units issuing tax-backed debt may be able to respond to increased costs by increasing tax revenues. Issuers of debt backed by user fees may find it appropriate to raise rates in response to changing financial performance. In contrast, a structured housing transaction backed by a pool of mortgage loans may have little ability to respond to changes in the impact of derivatives except as allowed for in the original structure. For these reasons, the impact of swaps on particular ratings is determined by individual rating teams using the rating methodologies for the different sectors, as well as the factors discussed here.

**Individual Derivatives vs. the Derivatives Portfolio**

Moody's provides ratings for some municipal issuers who have large portfolios of interest rate derivatives. Different contracts may have offsetting characteristics, such as non-correlated sensitivities to movements of interest rates. Where appropriate, Moody's considers the overall characteristics of a group of derivatives as well as the characteristics of individual contracts. For clarity, much of the discussion here focuses on individual contracts.

**Evaluating a Swap in Connection with Debt Issuance**

When an issuer enters into a swap in connection with a debt issuance, Moody's may request information about the proposed swap, along with copies of the swap documents (ISDA Master Agreement, Schedule, Confirmation and Credit Support Annex, if any). If the swap is of sufficient importance to the issuer's rating, we ask to see these documents before the rating is issued. The questions we address include:

- how the swap relates to the debt being rated, and
- the potential impact of the swap on the issuer's future liquidity and financial resources.

The review will focus on the swap related to the new bond issue; however, the swap will be viewed in the context of the issuer's total swap portfolio.

Although the exact approach may vary among different rating teams, the steps involved generally are as follows:

**Step 1. Benefits and risks**

- Identify the terms of the swap and how it relates to the debt being rated.
- Assess the potential benefits and the key risks.
- If appropriate, discuss with the issuer the reasons for entering into the swap, the risks it has identified, and its strategies for managing those risks.

**Step 2. Potential impact on cash flows and net revenues**

- Determine the potential for negative impact on the issuer's future net revenues and/or cash flows, because of factors such as basis spread, tax changes, amortization mismatch, and/or yield curve changes.
- Where the risk is potentially material, quantifying potential expense in stress scenarios (using the model discussed in Appendix D as a starting point, adjusted as appropriate to the swap and the issuer's circumstances), and comparing the potential expenses with the resources available to absorb them.



**Step 3. Potential impact on the balance sheet**

- Determine the potential for collateral posting and/or termination payments by the issuer, by review of the collateral and termination triggers in the documents, and comparing rating-based triggers with the current rating levels.
- Where the risk is potentially material, quantifying potential collateral or termination exposure in stress scenarios (see “Termination Risk” below), and assessing the potential impact of such payments on an issuer’s balance sheet and liquidity.

**Step 4. Counterparty**

- Identify the counterparty, and determine whether the counterparty’s obligations are supported by any other entities (such as a guarantor).
- Confirm the ratings of the counterparties and other obligors, and verify that the counterparty’s obligations to the issuer are supported by rated a entity.

**Step 5. Potential effects on future credit strength**

- Identify other factors that may impact future liquidity or balance sheet management, such as reliance on swaps for needed cash flows, reduced flexibility in future debt management, additional complexity, or need for future market access.
- Assess whether the swap impacts the rating, and comment appropriately on any important risk factors in rating related reports.

In our New Issue Report on the transaction, Moody’s may comment on the material provisions of the swap and its impact on our rating. See **Appendix B** for a discussion of information that may be included in reports.

In some cases, if we are comfortable with the issuer’s overall credit quality and pre-established parameters for swap transactions, and the swap risk is relatively small compared to the issuer’s resources, we do not necessarily need to evaluate each swap prior to assigning a rating to the related bond issue, but will consider the swap in our subsequent reviews of the issuer’s credit.

Moody’s analysts often use a Swap Guide as a tool in analyzing a swap and presenting the overall transaction to Rating Committee. An example of a Swap Guide is attached as **Appendix C**. An individual rating team may develop additional criteria for a specific category of credit.

**Assessing the Issuer’s Swap Portfolio in Surveillance of Ratings**

Moody’s also evaluates an issuer’s derivatives portfolio in periodic reviews of ratings. As a starting point, Moody’s reviews the information about swaps reported in the issuer’s annual audited financial statements, including the number and terms of derivatives contracts and their reported fair value. **The steps to be followed will be the same or very similar to those outlined in the previous section.** Moody’s considers whether the derivatives portfolio constitutes a material credit factor. This depends upon factors including the following:

- The number and complexity of interest rate derivatives
- The size of the swap portfolio compared with the level of the issuer’s resources
- Whether the swap portfolio has caused, or may cause, a material level of changes in cash flows or net revenues
- Whether the swap portfolio has caused, or may cause, any material impact on the balance sheet
- The issuer’s swap management capabilities
- The issuer’s ability to react if the credit becomes stressed, based on levels of available resources and ability to access the markets in a timely fashion

The purpose is to determine whether the risks of the portfolio as a whole are material to the issuer’s financial strength. Different derivative contracts may have offsetting credit affects that should be considered — for example, non-correlated sensitivities to upward or downward movements of interest rates.

If the swap portfolio is material, Moody’s may request additional information from the issuer and conduct more analysis of the potential risks of the swap portfolio, according to the methods described in the next section.

## Swap Methodology — Comprehensive Discussion

This section of the report provides a more in-depth discussion of Moody's analysis of interest rate swaps in the U.S. public finance market.

### FACTOR 1: SWAP MANAGEMENT PRACTICES

Interest rate swaps add an additional level of complexity to an issuer's debt management. Moody's considers the issuer's capacity to manage the swap portfolio as part of the rating process. For an issuer with fewer or less complex swaps, oversight may be less critical (although it is always important). Issuers with a large or complex swap portfolio, however, should have the capacity and the resources to manage the evolving effects of the swaps on the issuer's credit profile over the long term.

At the time a swap is initiated, Moody's reviews the financial and legal terms of the swap. Depending on the terms of the swap and its relationship to the issuer's finances, issues which may be considered and discussed with the issuer include the following:

- The reasons for entering into the swap, and its relationship to the debt being hedged (if any)
- The anticipated economic benefits and the risks of the swap, and the variables most likely to affect future performance
- Whether the swap is expected to match the related debt in amount and term, and what strategies will be employed if mismatch occurs
- If mismatch may occur, whether termination options are structured to reduce any possible negative impact on the bond program
- Whether the swap is reasonably expected to minimize negative basis spread, given the indexes chosen for variable rate payments
- Whether the issuer has considered responses to unanticipated basis expense and the level of resources available for absorbing such expenses
- The nature of the issuer's legal pledge for swap payments — whether swap payments are limited to a particular indenture or program or constitute a broader general obligation
- Whether scheduled swap payments, termination payments and collateral posting obligations are on parity with or subordinate to bond debt service
- Whether the issuer has analyzed when a termination payment might occur, the range of expected termination payments, and what resources might be available to apply to a termination payment if necessary
- The credit quality of the counterparty
- Whether management has reviewed the legal documents and addressed any significant issues
- The nature of collateral posting obligations
- Whether scheduled payments and/or termination payments will be covered by swap insurance and any implications for the credit

As part of its surveillance of ratings, Moody's reviews an issuer's swap policies (written or otherwise) and management practices. Moody's also reviews the issuer's disclosure about swaps in its financial statements, official statements and other management reports that may be available. Areas of management practice that may be significant include the following:

- Procedures for entering into swaps, including management and board of directors' oversight
- Periodic review of market values of swaps, their relation to the issuer's available resources, and strategies for management of possible termination payments
- The methods employed in reviewing market value of swaps
- Procedures for assuring that periodic swap payments are calculated correctly
- Periodic review of swap basis spread performance and strategies to absorb additional costs and/or improve the performance of the portfolio
- Policies for approval of counterparties
- Procedures for monitoring credit quality of individual counterparties and overall counterparty credit characteristics
- Periodic review of possible collateral posting exposure and plans for providing collateral if necessary

## Effective Swap Policies

Moody's considers it to be good practice for an issuer using interest rate swaps to adopt a written swap policy. The policy might be a separate document or a part of an overall debt or liquidity management policy. For an issuer that enters into swaps regularly, Moody's considers a swap policy to be an essential management practice.

Although the content of a swap policy must be determined by each issuer based on its legal authority and management structure, the following are elements that Moody's looks for in a swap policy:

- **Authorization:** The role of the issuer's board (if any) in authorizing swaps, and how authority is delegated to executive officers.
- **Purposes:** The purposes for which the issuer is authorized to enter into swaps, such as hedging interest rate risk on specific debt or assets, reducing borrowing costs, locking in currently available interest rates for future transactions, or improving cash flows. This generally includes a statement that swaps should not be used purely for speculative purposes. It also generally includes citation of legal authority to enter into derivatives.
- **Risk Assessment:** The factors the issuer will consider in determining whether to enter into a swap, and a statement of why the swap is considered to be appropriate given the balance of expected benefits, risks and risk mitigants.
- **Standards for Counterparties:** Any specific minimum standards for acceptable counterparties, such as minimum credit rating levels, levels of experience, and/or guidelines for uncollateralized exposure to a particular counterparty.
- **Terms and Documentation:** The key terms that should be included in each swap (for example, a statement of assets and revenues pledged for swap payments and the level of subordination, if any, of payment priorities). Enumeration of the documents that should be used to record a swap, including standard ISDA documents. The policy may identify the areas to be addressed while leaving flexibility for specific terms.
- **Risk Management Function:** How the issuer organizes the risk management function, including the administrative units responsible. This includes an articulation of how the issuer provides for the personnel and expertise needed to monitor its swap exposure at a level appropriate to the size and complexity of the swap portfolio (either in-house or in combination with outside advisors).
- **Periodic Assessment and Reporting:** The steps the issuer will take to manage its swap portfolio, including periodic assessment of basis spread, counterparty risk, collateral posting risk, termination risk and amortization mismatch, along with strategies to address these risks if it is determined that hedges are having a negative affect on the issuer's credit. A list of reporting requirements and frequency.

## FACTOR #2: FINANCIAL IMPACT OF SWAPS

Moody's assesses an issuer's derivatives as one part of an overall financial portfolio. Potential financial impact is broken down into ten areas. These may be viewed as potential risk factors, or as dimensions that may represent a measure of potential benefits and potential risk. To the extent that these factors pose risk, the swaps may not be the sole source of the risk; nevertheless, each of these factors should be considered when derivatives contracts are involved in financial management.

The benefits and risks are used to evaluate four key sub-factors:

- A. **Cash Flows/net revenues:** the potential positive or negative effect on future revenues
  - Primary factors:
    - Basis risk
    - Tax risk
    - Yield curve risk
    - Amortization mismatch
- B. **Balance Sheet:** potential balance sheet effects of future events
  - Primary factors:
    - Termination risk
    - Collateral posting risk
- C. **Counterparty:** the potential for failure of performance by the counterparty
  - Primary factors:
    - Counterparty risk
- D. **Financial Management:** Other potential constraints on financial management
  - Primary factors:
    - Market access
    - Loss of flexibility
    - Management complexity

**Risk #1: Basis Risk**

The cash flows generated by swaps are a function of the relationship between indexes on which payments are based. For example, for a floating-to-fixed rate swap that hedges tax-exempt variable rate bonds, the issuer may expect the bonds to trade approximately like SIFMA. However, the bonds may trade at a spread above SIFMA, and the percentage of LIBOR included in the swap contract may be greater or less than SIFMA at a particular payment date. Similar issues arise with basis swaps, where the issuer agrees to make variable payments based on one index in exchange for variable payments based on a different index (or percentage of the same index).

Such divergence between the variable rate indexes creates basis spread, which result in additional revenues or costs for an issuer. Under certain conditions, basis spread that is negative to the issuer may materially reduce the issuer's net revenues or cash flows. Even if the correlation between the index rate and the bond rate is high in the long run, short-term mismatches can create cash flow stress at certain points in time.

Moody's considers the potential effect of unanticipated expenses resulting from basis risk, and whether the issuer is likely to have resources available to absorb those expenses. Where basis spread may pose a significant expense (given the terms of the swaps and the notional amount in relation to the issuer's resources), Moody's may quantify one or more stress-case basis expense scenarios. The interest rate model described in Appendix D may be used for this purpose, with modifications as appropriate to the swap portfolio. The issuer's capacity to absorb such additional expense will be included in the rating analysis.

For more structured credits where the bonds are supported by specific payments — for example, housing bonds, where the bonds are backed by payments from fixed-rate mortgages — cash flow tests are a critical part of Moody's rating analysis.<sup>2</sup> We request that the issuer provide cash flows that include certain stresses designed to measure the ability of the program to absorb basis spread. Separate cashflows model high interest rate and low interest rate environments.

*Please see Appendix D for examples illustrating the application of Moody's basis risk and tax risk models.*

**Risk #2: Tax Risk**

In a fixed-rate tax-exempt transaction, tax risk — the risk that reductions in marginal tax rates or other change in law will decrease the value of the tax exemption — is usually borne by the bondholders. There is usually no provision for change in the bondholders' yield upon a change in tax law.

This allocation of risk is usually reversed for tax-exempt variable rate debt. If the tax exemption declines in value to the bondholders because of a decrease in tax rates or other change in tax law, then bondholders will demand a higher rate of return, and the issuer is exposed to tax risk. Swaps where the issuer pays SIFMA may shift the tax risk to the swap counterparty; however, LIBOR-based swaps, while hedging against rises in interest rates, leave the issuer exposed to tax risk. Although the tax risk may be inherent in the variable rate debt, tax risk may affect the effectiveness of the swap. Basis swaps may also involve tax risk to the issuer, such as when the issuer makes payments based on a tax-exempt index and receives payments based on a taxable index.

By using variable rate debt, either unhedged or in combination with LIBOR-based swaps, issuers historically have obtained lower costs of funds. While these lower costs may be a credit positive, the tax risk associated with unhedged variable rate debt or LIBOR-based swaps used to hedge tax-exempt variable rate debt may be significant to certain credits over the long run. Basis swaps also may pose potentially significant risks in certain scenarios. Moody's considers the potential impact of tax risk in increasing the negative basis spread that an issuer might experience (as illustrated in Appendix D).

**Risk #3: Yield Curve Risk**

CMS swaps may add an additional element of risk because their cash flow performance depends on the future shape of the relevant yield curve (*i.e.*, the relationship between short-term and intermediate-or long-term rates — for example, the relationship between one-month LIBOR and five or ten-year LIBOR). To some extent yield curve risk is present in other swaps because it affects their mark-to-market value. With a CMS swap, an issuer usually makes payments based on a short-term rate, such as one-month LIBOR or SIFMA, and receives payments based on a longer-term rate, such as the ten-year LIBOR swap rate or the ten-year SIFMA swap rate. The issuer's expectation is that because short-term rates tend to be lower than longer-term rates, the issuer will obtain positive cash flow from such an exchange.

However, the issuer may experience cash flow that is less favorable than expected or even negative cash flow, when the relationship of interest rates differs from historical norms. If the swap is priced assuming that the yield curve will be upward-sloping, then the issuer may not achieve the intended benefits, or may lose money, during periods when the yield curve is flat or inverted (short-term rates are equal to or higher than longer-term rates).

2. See Rating Methodology — Approach to State HFA Cash Flow Projections, August 2006 (97505)

When evaluating CMS swaps, Moody's considers the potential effects of the future shape of the yield curve on the issuer's finances. Moody's uses an approach similar to that employed in assessing basis and tax risk (see Appendix D). Where the cash flows are material to the rating, Moody's may apply stress cash flows that measure the effects of interest rate environments that adversely affect the CMS swap. In the most common example cited above, where the issuer pays based on short-term rates and receives payments based on long-term rates, Moody's may model the performance of the swap where the yield curve is flat or where the yield curve experiences periods of inversion.

#### **Risk #4: Amortization Mismatch**

At the time a swap is entered into, Moody's will consider whether the swap is likely to continue providing an effective hedge over time. A swap that is intended as a hedge for specific debt generally will have an initial notional amount and a term equal to the principal amount of the debt and provision for changes in the notional amount to match scheduled amortization of the debt. Various future events may cause the notional amount of the swap to no longer match the amount of the debt (or asset position) it is intended to hedge. One example is a swap that includes a "knockout" under which swap payments cease if interest rates reach certain levels. The issuer may lose a hedge altogether if the knockout becomes effective.

Another example is mismatch between amortization of bonds and the notional amount of a swap intended as an interest rate hedge. If bond redemptions occur for reasons not contemplated when the swap contract is initiated — for example, because of optional redemption, refunding, special redemption caused by unexpended bond proceeds, or special redemption of revenue bonds caused by prepayment or default of an underlying asset — the notional amount may no longer match the bond amount.

If bond amortization occurs more rapidly than anticipated, the issuer will be "overhedged" and will be paying for a portion of a swap that is no longer needed as a hedge. If the issuer is "in the money" on the swap and the swap contract permits, the issuer may be able to terminate the swap without cost, or with a payment from the counterparty. If the issuer is "out of the money" it may be faced with the choice of making an unforeseen termination payment or making payments on a swap that no longer serves the issuer's objectives. If bond amortization occurs more slowly than anticipated, the issuer will be "underhedged," and a portion of the debt will be unhedged variable rate debt subject to interest rate risk. Either case can lead to additional expense, either in payments on the swap or payments on unhedged variable rate debt.

#### **Risk #5: Termination Risk**

Standard swap contracts provide for a mark-to-market settlement upon certain events of default or termination events. In municipal finance swaps, these generally include the standard Events of Default and Termination Events defined in the ISDA Master Agreement, as well as Additional Termination Events included in the Schedule or Confirmation. Common Additional Termination Events include downgrade of the issuer's rating and/or the counterparty's rating below certain levels.

The same concept generally applies if the issuer seeks to terminate the swap voluntarily — for example, because the swap no longer provides an effective hedge, or because it becomes advantageous to refinance related debt. The issuer typically has an option to terminate at market (while the counterparty typically does *not* have that legal option). If the swap is out of the money to the issuer, the issuer's ability to terminate may be constrained by whether it can make a termination payment without undue stress on current resources.

Market movements may work to an issuer's advantage. Floating-to-fixed-rate swaps priced during the recent period of very low interest rates, for example, may have positive value to the issuer as rates rise. The issuer may take advantage of the increased value in the form of a potential termination payment where the issuer has a termination option and termination serves its financial objectives.

On the other hand, termination risk — the risk that the issuer will be required to make a termination payment to the counterparty<sup>3</sup> — is potentially a significant risk factor. In some cases, the risk is substantially mitigated because termination is unlikely to occur — for example, where the most likely termination event is a downgrade and the downgrade trigger is significantly below the issuer's rating. However, if a termination *does* occur at a time when the issuer is out the money, the payment may have a significant impact on the issuer's liquidity and reserves. Because one potential cause of a termination would be a lowering of the issuer's rating, termination could occur at a time when the issuer's liquidity is already under stress for other reasons. A demand for a significant cash settlement under such circumstances could compound the decline of the issuer's credit quality.

Moody's also will consider any provisions of prevailing state law that may limit the issuer's authority to make termination payments.

3. The risk of early termination when the counterparty owes a payment to the issuer is discussed below under "Counterparty Risk."

Moody's considers the following in determining whether termination risk is material to an issuer's credit quality.

- The likelihood that termination will occur, which depends on the distance between the issuer's current rating and the rating level that can trigger termination, as well as other provisions, such as what kinds of obligations are included in the cross-default provisions of the legal documents
- The ability of the issuer to make a potential termination payment and still retain sufficient resources to sustain the current rating, which depends on the relationship between potential exposure and the issuer's resources
- The asset pledge supporting termination payments — for example, whether termination payments are general obligations of the issuer, and whether they are subordinate to, or on parity with, payment of rated debt
- Purchased options to termination at par (with no mark-to-market payment) or other contract terms that may reduce exposure to termination risk, such as term-out provisions allowing for termination payments to be made over time
- Swap insurance provisions that may place termination under the control of the insurer (although possibly subject to a reimbursement obligation in favor of the insurer)
- Whether the issuer may be able to access the capital markets to finance a termination payment, or access the swap market to obtain a replacement swap that may absorb all or part of the cost — although if termination is caused by a downgrade of the issuer's credit, the issuer may have difficulty issuing debt or obtaining a new swap on favorable terms

### ***Measuring Potential Termination Risk***

Quantifying termination exposure is complex because it depends on both movements of interest rates and changes in the issuer's credit strength. Moody's is in the process of considering models that may provide a standard measure of termination risk, which are expected to be described in an upcoming publication. In current practice, Moody's uses the following sources to estimate potential mark-to-market exposure.

- **Termination Matrix.** Moody's may request a "termination matrix" consisting of an estimate of the future fair value of the swap at certain times and based on certain movements of interest rates. The appropriate levels of interest rate shocks will vary depending on the terms of the swap. Moody's has accepted a variety of well-reasoned presentations of termination risk. For floating-to-fixed rate swaps or fixed-to-floating rate swaps, for example, typical parameters for a matrix are as follows:
  - For LIBOR-based floating-to-fixed or fixed-to-floating swaps:
    1. Assume the following shifts in the LIBOR curve: 100 basis points, 200 basis points and 300 basis points upward, and 100 basis points, 200 basis points and (in some cases) 300 basis points downward.
    2. Model termination value in each interest rate scenario at the points: (a) one year forward, (b) five years forward and (c) after one half of the remaining term of the swap.
  - For SIFMA-based floating-to-fixed or fixed-to-floating swaps:
    1. Assume the following shifts in the SIFMA swap curve: 75 basis points, 100 basis points and 200 basis points upwards, and 75 basis points, 100 basis points and (in some cases) 200 basis points downward.<sup>4</sup>
    2. Model termination value in each interest rate scenario at the points: (a) one year forward, (b) five years forward and (c) after one half of the remaining term of the swap.

A termination matrix of this kind has inherent limitations. It usually assumes parallel shifts in interest rates, whereas changes in the shape of the yield curve will potentially affect future swap values. The levels of change may require adjustment over time depending on levels of interest rates and characteristics of yield curves — for swaps entered into in low-rate environments, for example, a 300 basis point downward shift may be too severe to be meaningful. Options to terminate without a mark-to-market payment may need to be evaluated separately. Additional analysis may be requested for a particular swap, including valuation under other interest rate scenarios.
- **Periodic Mark-to-Market Data.** Most issuers report the current fair value of each swap to Moody's at least annually. This is usually accomplished by inclusion of the fair value of each swap in the issuer's annual audited financial statements, in accordance with GASB or FASB accounting standards. For issuers with a large amount of swap exposure relative to their financial resources Moody's may request reporting of fair value on a more frequent basis.

4. For SIFMA swaps, Moody's has in some cases accepted termination matrices that model shifts in the LIBOR curve and shifts in the SIFMA-LIBOR ratio as separate components.

- **More Detailed Scenarios.** Where Moody's considers the issuer's swap portfolio to be a material part of its credit analysis, because of the size of the swap portfolio in relation to the issuer's resources and other credit factors, Moody's may ask the issuer to provide additional information or analysis, or Moody's may perform its own additional modeling. This may include scenario testing based on certain stressful assumptions about future interest rates and/or simulations of interest rate paths.

### ***Termination Risk with Rate Locks and Swaptions***

An issuer typically enters into a forward-starting swap or rate lock in order to lock in current low interest rates for application to a future financing. When the effective date arrives, the issuer may find it advantageous to make a termination payment rather than allow the swap to go into effect. Although the amount of that payment may be recovered over time as a result of the lower future borrowing costs, the issuer must have available liquid resources to fund the termination payment, or be in a position to include the payment in the bond issue. Moody's may evaluate whether the issuer has considered the range of potential termination costs and has identified resources that might be used to fund a termination payment.

### **Upfront Swaption Payments**

When an issuer sells a swaption, the issuer may receive an up-front cash payment (or a series of payments over time). The payment may represent the full value of potential future interest rate savings. Moody's will inquire why the issuer has entered into the swaption, and what use the issuer will make of the up-front payment. Use of a swaption payment for current purposes such as funding an operating budget shortfall, may signal weakening credit quality.

### **Risk #6: Collateral Posting Risk**

Some swaps require one or both parties to post collateral for all or part of its mark-to-market exposure to the other party. Collateral posting requirements, if any, are detailed in a Credit Support Annex to the applicable ISDA Master Agreement. The issuer may be required to post collateral, upon demand by the counterparty, when the market value of the swap is negative to the issuer, and the negative value is greater than a specified amount. The amount of collateral required may be the full market value of the swap, or the amount by which the market value exceeds a specified "Threshold Amount." Different Threshold Amounts are often specified for different rating levels. If the issuer obtains insurance on the swap payments (generally in connection with bond insurance), collateral posting may be a function of the insurer's credit, which may reduce the risk with respect to the insured bonds.

Collateral posting is a significant feature in credit analysis between swap counterparties. Posting collateral may have a positive effect in compelling the issuer to reserve against termination risk in stages before a downgrade that is cause for termination. At the same time, Moody's views collateral posting risk as a potentially significant credit issue.

As with termination risk, collateral posting represents a potential future challenge to liquidity. The highest rating trigger at which collateral may be required is often significantly higher than the rating trigger for swap termination. Therefore, a collateral trigger is more likely to occur than outright termination if the issuer's credit quality begins to decline. Posting collateral after a downgrade places additional stress on the issuer's liquidity at a time when its financial resources already have likely been reduced, thus potentially contributing to a further slide in financial condition. If the issuer fails to post collateral, the counterparty may have the right to terminate (which could require a market-value payment). Moody's may quantify the issuer's potential collateral exposure at different rating levels, in light of potential mark-to-market values (see the discussion of Termination Risk above).

The legal structure of the transaction is significant. In particular, Moody's considers whether collateral posting obligations are subordinated to rated debt service or on parity with bond debt service, either explicitly or implicitly (even where termination payments are expressly subordinated).

We will also consider any state law provisions that may limit an issuer's ability to post collateral.

### ***Parallel vs. Non-Parallel Requirements***

Sometimes collateral requirements — rating levels and thresholds — are at parallel levels for both the issuer and the counterparty. Collateral triggers where parallel ratings are used for the municipal issuer and the counterparty may not take into account the differences between the municipal rating scale, on which U.S. municipal ratings are based, and the global scale, on which ratings of swap counterparties are based. Moody's has recently provided a detailed discussion of the different scales.<sup>5</sup> It may be appropriate for the issuer to request different collateral thresholds to apply to the counterparty, reflecting the difference in meaning of the ratings.

5. For a discussion of the global and municipal rating scales, see *Rating Methodology*, The U.S. Municipal Bond Rating Scale: Mapping the Global Rating Scale And Assigning Global Scale Ratings to Municipal Obligations, March 2007 (102249).

### **Risk #7: Counterparty Risk**

Interest rate swaps expose the issuer to counterparty risk — the risk that the counterparty will no longer perform its obligations under the swap, or that its credit quality will decline to the point where there is uncertainty about its ability to perform. If the counterparty is no longer making the payments required of it under a swap that is a hedge against specific debt, the issuer will lose the hedge and will be left with unhedged debt. Moreover, if the counterparty defaults or is affected by a termination event at a time when the swap has a market value that is negative to the issuer, the issuer could be required to make a payment in order to terminate or replace the swap, despite the fact that the counterparty was the cause of the termination. The issuer might be able to arrange for a replacement swap to replace the hedge and absorb part of the termination cost.

In assessing counterparty risk, Moody's considers the following factors:

#### ***Counterparty Ratings***

Most of the swaps we review involve highly rated counterparties — in the Aa or Aaa range (either directly, or through a guarantee or similar arrangement). Moody's looks for all municipal issuers to face counterparties that are rated at least at investment-grade levels. In general, we consider it good practice to deal with counterparties rated in the A range or higher. Lower ratings may be appropriate on a case-by-case basis; however, we may give closer scrutiny to counterparty risk. For transactions heavily dependent on cash flows, we may quantify the counterparty risk for lower-rated counterparties in the rating analysis.

#### ***Diversification***

Diversification of the issuer's exposure among a variety of highly rated counterparties may offer a measure of protection against counterparty risk by reducing the effects of weakening credit for a single counterparty. As the number of swaps in an issuer's portfolio increases, diversification may become a more important focus. If the issuer itself has different ratings for different indentures or programs, diversification will be reviewed separately as it applies to each rating.

#### ***Collateral***

Collateral posting requirements for the counterparty is a positive factor. Collateral posting may limit the issuer's exposure to counterparty risk for a particular counterparty to the amount of the collateral posting thresholds. Moody's has established no minimum requirements for collateral posting. If there are instances where the level of collateral becomes material, we may look to standards developed for structured finance transactions as a reference point. See the Special Report, *Framework for De-Linking Hedge Counterparty Risks from Global Structured Finance Cashflow Transactions — Moody's Methodology*, (SF73248) May 10, 2007.

As discussed previously under "Collateral Posting Risk," it may be appropriate for collateral thresholds applying to the counterparty to be different than the thresholds applying to the issuer at the same rating levels, reflecting the differences between the municipal and global rating scales.<sup>6</sup>

### **Risk #8: Market Access**

Moody's considers whether the issuer is likely to need additional access to the swap market in the future. For example, if a swap has an initial term that ends before the maturity of the hedged debt, the issuer may intend to obtain a replacement swap when the initial swap expires. Depending upon market conditions and the issuer's credit position, a replacement may not offer the same level of economic benefit as the original hedge. Market access also may become an issue if the issuer decides to terminate or modify an existing swap, either because it is no longer economically beneficial or because the related debt should be restructured. In such cases, we may evaluate the potential impact of loss of the hedge on the issuer's finances.

### **Risk #9: Loss of Flexibility**

In some circumstances, interest rate swaps may complicate the future financial management options available to issuers. If the issuer has the right to refund or otherwise refinance hedged debt, termination or modification of the hedge could cause additional expense. If a swap ceases to be economically beneficial, because of changes in market interest rates, tax law or other circumstances, the issuer may face additional costs in unwinding the swap. Also of concern are situations where the issuer is, in effect, counting on swap cash flows to meet revenue needs, so that a change in swap effectiveness could lead to budget or other revenue issues. Moody's may consider whether such issues are developing or may develop, along with the issuer's ability to respond to such challenges and their potential effects on the issuer's finances.

6. For a discussion of the global and municipal rating scales, see *Rating Methodology*, The U.S. Municipal Bond Rating Scale: Mapping the Global Rating Scale And Assigning Global Scale Ratings to Municipal Obligations, March 2007 (102249).



**Risk #10: Management Complexity**

As was discussed in the “Management Practices” section, an issuer using swaps should acquire a level of understanding of the factors discussed above that is appropriate to the complexity of the issuer’s portfolio. This may require the commitment of additional resources on a sustained basis, such as additional training, personnel, systems or outside advisors to evaluate swaps at inception and monitor their performance over time.

**FACTOR 3: LEGAL DOCUMENTATION**

If a swap is entered into at the time a rating is requested, Moody’s may ask to review reasonably final drafts of the swap documents, in order to understand the issuer’s rights and responsibilities before assigning a rating. The following are certain key terms that Moody’s will review.

**ISDA Master Agreement**

Swap transactions are generally governed by an ISDA Master Agreement entered between the issuer and the counterparty. Moody’s understands that the 1992 version is the industry standard. In general, if an issuer uses the 2002 version of the ISDA Master Agreement, additional analysis may be required because of material differences from the standard terms in the 1992 version.

**Schedule**

Moody’s may request to review a Schedule to the ISDA Master Agreement before rating the debt associated with the swap.

The Schedule sets out the specific terms of the legal agreement negotiated between the parties; consequently, all parts of the Schedule are significant. Key terms that are generally covered in the Schedule include the following (alternatively, these matters could be addressed in the Confirmation for a particular transaction):

- **Payments on early termination:** The Schedule should clearly identify the method selected; Market Quotation/Second Method is the method of calculation most commonly selected. Moody’s reviews any changes to the standard termination provisions. Certain terms, such as a term-out provision allowing the issuer additional time to make a payment, may be beneficial (although not very common in current practice).
- **Additional termination events:** Moody’s will review additional termination events and events of default that have been added. In particular, we look for a “downgrade trigger” with respect to the counterparty, so that the issuer can terminate upon downgrade of the counterparty below that level. If there is a downgrade trigger with respect to the issuer, the document should state the rating level for the trigger. It also should clearly state what rating the trigger references (for example, whether it is an issuer rating or the rating of a particular debt issue). Moody’s will consider the distance between the current rating and the trigger events.
- **Cross-Default:** Moody’s will assess the nature of the obligations that are cross-defaulted to the swap, in order to determine whether these provisions make termination against the issuer significantly more likely. This includes review of the provisions for Default under Specified Transaction and Cross-Default.
- **Asset Pledge:** The Schedule may be reviewed to identify what assets or revenues the issuer is pledging in support of its obligations under the swap. These may be different for regularly scheduled payments and for termination payments. We examine whether the issuer’s obligation is limited to the revenues of a particular bond indenture, or whether the obligation constitutes a general obligation of the issuer.
- **Priority of Payment:** The Schedule should identify the level of priority assigned to swap payments in the issuer’s program. If the swap is paid from revenues under the bond indenture, regularly scheduled swap payments generally should not be superior to bond principal and interest. In many cases, termination payments are payable at a subordinate level. Moody’s reviews the terms of legal documents to determine whether collateral posting or termination may impair resources available for future debt service payments.
- **Credit Support Provider:** If the counterparty is unrated, Moody’s will review whether a guarantee is in place from a rated entity.

**Confirmation**

The terms of each swap should be documented with a Confirmation. Moody’s may request a draft of the Confirmation before the related rating action. The Confirmation will generally describe the economic terms of the swap, including notional amount, schedule of changes in notional amount, effective date and scheduled termination date, variable rate index or indexes, calculation and payment dates and (after pricing) fixed rate. We look to see whether the issuer (but not the counterparty) is given an express right to terminate at market (usually subject to its ability to fund any payments due).

Other specific terms that may have a material impact on the risks borne by the issuer. For example, the issuer may have purchased a right to terminate at par with no mark-to-market termination payment, which reduces termination and amortization mismatch risk. On the other hand, if the Counterparty has a right to terminate, Moody's may assess the credit impact of the related debt as if it were unhedged variable rate debt.

**Credit Support Annex**

Moody's reviews the triggers and thresholds for collateral posting by both the counterparty and the issuer.

**Guarantee**

If the rating associated with the counterparty's credit is provided by an affiliate of the counterparty, Moody's reviews the Guarantee or other related documents to verify that the issuer has appropriate recourse to the rated entity.

## Related Research

---

### Special Comments:

Increasing Use of Interest Rate Swaps by Local Governments Reflects Low Interest Rate Environment and New Authorizing Legislation, May 2004 (87180)

Moody's Introduces Corporate Equivalent Ratings for Municipal Obligations Under Swap and Taxable Cross Border Transactions, April 2003 (77844)

Swaps and the Municipal Market: The Impact of Swaps and FASB 133 on Municipal Credit Quality, October 2002 (76388)

State Housing Finance Agencies Issue Increasing Amounts of Variable Rate Debt, July 2000 (58498)

### Rating Methodologies:

The U.S. Municipal Bond Rating Scale: Mapping to the Global Scale and Assigning Global Scale Ratings to Municipal Obligations, March 2007 (102249)

Approach to State HFA Cash Flow Projections, August 2006 (97505)

*To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.*

## Appendix A

### COMMON FORMS OF INTEREST RATE DERIVATIVES IN MUNICIPAL FINANCE

The following examples of interest rate swap contracts are included for reference only.

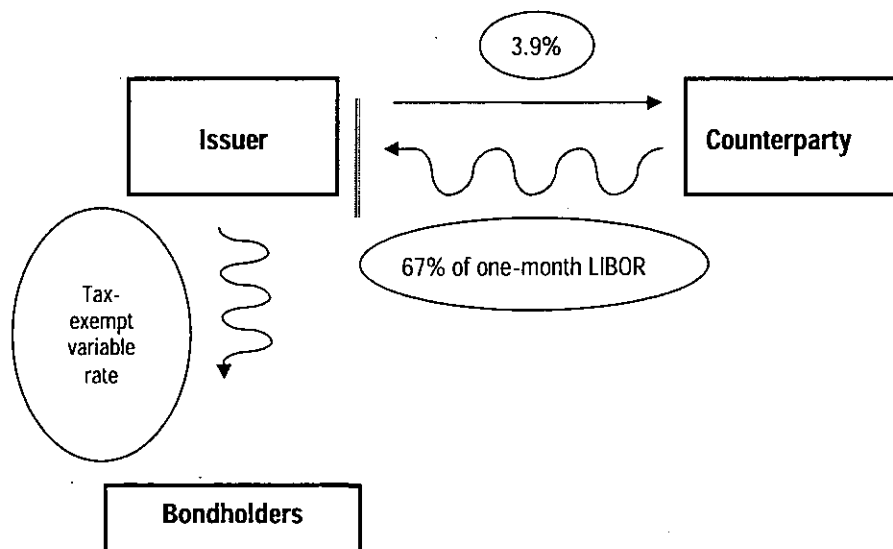
*All rates are hypothetical and included solely for purposes of illustration. Actual rates will vary depending upon market conditions at the time a swap is executed.*

**Floating-to-Fixed-Rate Swap:** The most common form of interest rate swap that Moody's has seen in municipal finance. The issuer *pays* periodic payments to the counterparty based on a fixed rate, and *receives* periodic payments from the counterparty based on a floating rate. This is commonly used in connection with the issuance of variable rate bonds as a hedge against interest rate risk.

**Example:**

Notional Amount:	\$100,000,000
Swap Term:	20 years
Issuer Pays:	3.90% (fixed rate per annum)
Issuer Receives:	67% of one-month LIBOR, reset monthly
Payment dates:	Semiannual, each January 1 and July 1
Reset dates:	First Business Day of each month.

In the example, on each swap payment date, (1) the issuer pays the counterparty an amount based on the fixed rate, and (2) the counterparty pays the issuer 67% of one-month LIBOR, calculated by averaging 67% of monthly resets of one-month LIBOR during the previous six-month period. The issuer makes floating rate payments on the bonds. The payment dates for swap payments often match the payment dates on the bonds, which may be made monthly or semiannually – however, in some cases the swap and bond payment dates are different.

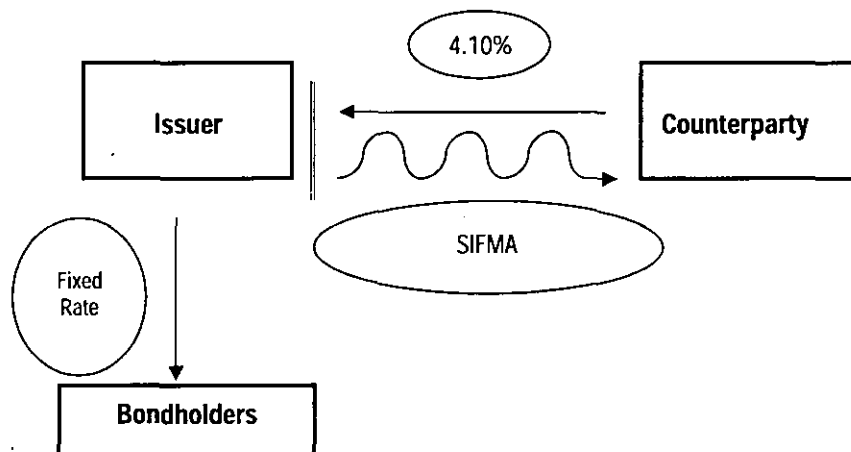


**Fixed-to-Floating Rate Swap:** The issuer *pays* periodic payments to the counterparty based on a floating rate, and *receives* periodic payments from the counterparty based on fixed rate. This may be used to create "synthetic floating rate debt," with the objective of obtaining potential economic advantages of variable rate debt without the need for remarketing or external liquidity support.

**Example:**

Notional Amount:	\$100,000,000
Swap Term:	20 years
Issuer Pays:	SIFMA* (resets weekly)
Issuer Receives:	4.10%
Payment dates:	Semiannual, each January 1 and July 1
Reset dates:	First Business Day of each month.

In the example, on each payment date, the issuer pays the counterparty an amount based on the weighted average of SIFMA resets during the period and the issuer receives an amount based on 4.10%. The issuer makes fixed rate payments on the bonds.



\*The Securities Industry and Financial Markets Association Municipal Swap Index, an index of tax exempt variable rate demand obligations (formerly called BMA).

**Basis Swap:** The issuer *pays* periodic payments to the counterparty based on a floating rate index, and *receives* periodic payments from the counterparty based on a different floating rate index. In some cases, the issuer also receives an additional fixed spread (30 basis points in the example given below); although some basis swaps do *not* involve an additional spread.

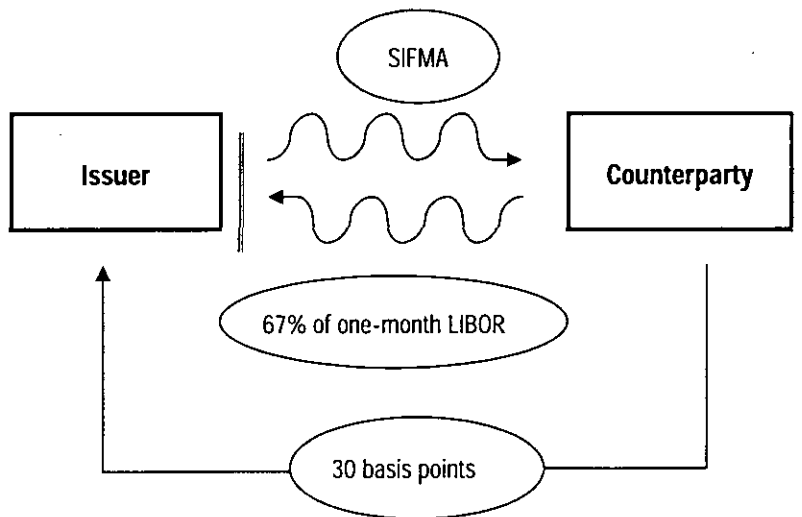
In some cases the payments on one leg of the swap are based on SIFMA, and the payments on the other leg are based on one or three-month LIBOR.

A basis swap may be entered into purely to improve cash flows, based on the expectation that the floating payments received by the issuer will exceed the floating payments made by the issuer.

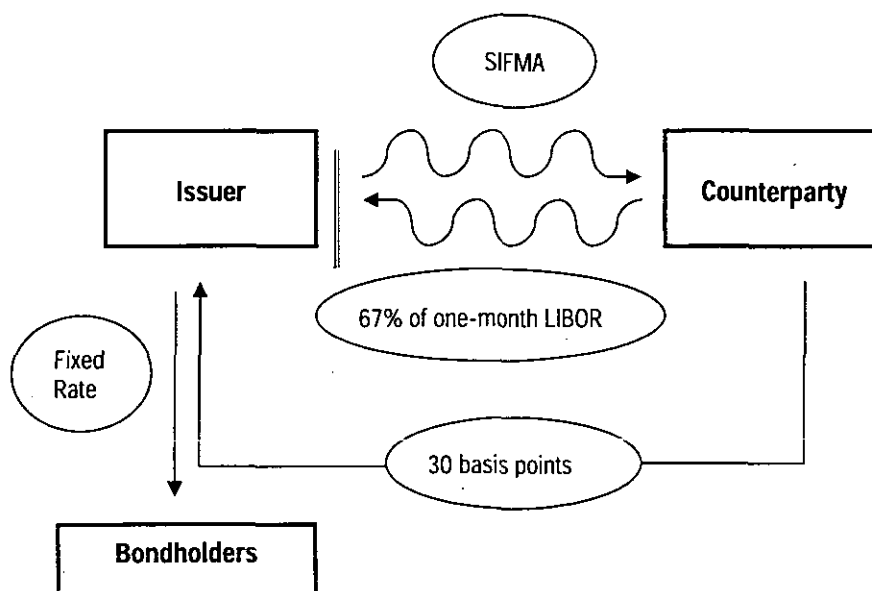
**Example:**

Notional Amount:	\$20,000,000
Swap Term:	20 years
Issuer Pays:	SIFMA (resets weekly)
Issuer Receives:	67% of one-month LIBOR plus 30 basis points
Payment dates:	Semiannual, each January 1 and July 1
Reset dates:	First Business Day of each month

In the example, on each payment date, the issuer pays the counterparty an amount based on the weighted average of weekly resets of SIFMA over the previous six months. On each payment date, the counterparty pays the issuer an amount based on the weighted average of 67% of monthly resets of one-month LIBOR over the previous six months *plus* 30 basis points. Not all basis swaps involve an added fixed spread such as shown in this example.



An issuer may enter into a basis swap in combination with long-term fixed rate debt or long-term variable rate debt. The cash flows from the basis swap may be viewed in combination with the bond payments. The issuer's objective is to achieve a lower all-in cost. For example, the diagram below shows the same basis swap illustrated above combined with fixed-rate bonds. The issuer may assume that SIFMA and 67% of one-month LIBOR will be approximately equal, on average, over time, so that the basis swap will lower the borrower's ongoing costs by approximately 30 basis points.

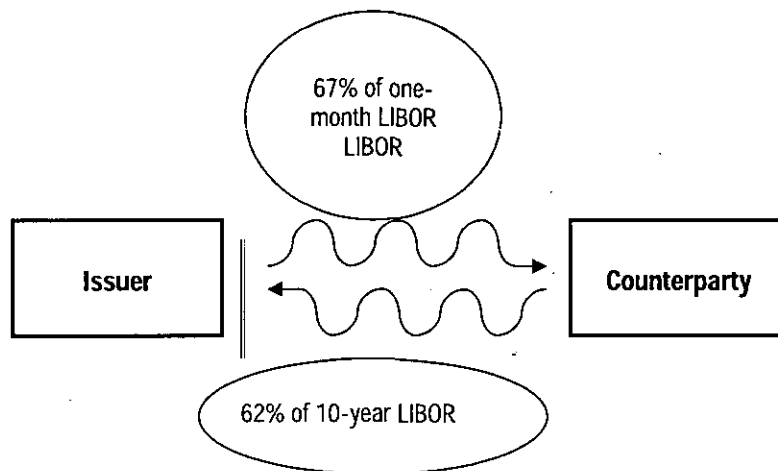


**"Constant Maturity" or CMS Swap:** A swap in which one stream of variable rate payments is based on a *medium* or *long-term* reset rate, while the reset period for swap payments is shorter. Most of the CMS swaps that Moody's sees are basis swaps where one stream of payment is based on a medium- or long-term reset rate. For example, an issuer might pay a percentage of *one-month* LIBOR and receive a percentage of *ten-year* LIBOR.

**Example:**

Notional Amount:	\$30,000,000
Swap Term:	20 years
Issuer Pays:	67% of one-month LIBOR, reset monthly
Issuer Receives:	62% of 10-year LIBOR, reset monthly
Payment dates:	Semiannual, each January 1 and July 1
Reset dates:	First Business Day of each month

In the example, on each payment date, the issuer *pays* the counterparty an amount based on the weighted average of monthly resets of 67% of *one-month* LIBOR. On each payment date, the issuer *receives* an amount based on the weighted average of 62% of monthly resets of *10-year* LIBOR. The issuer's expectation is that as the LIBOR yield curve steepens, the spread between 10-year LIBOR (received) and one-month LIBOR (paid) will widen, thereby creating positive cash flow for the issuer.



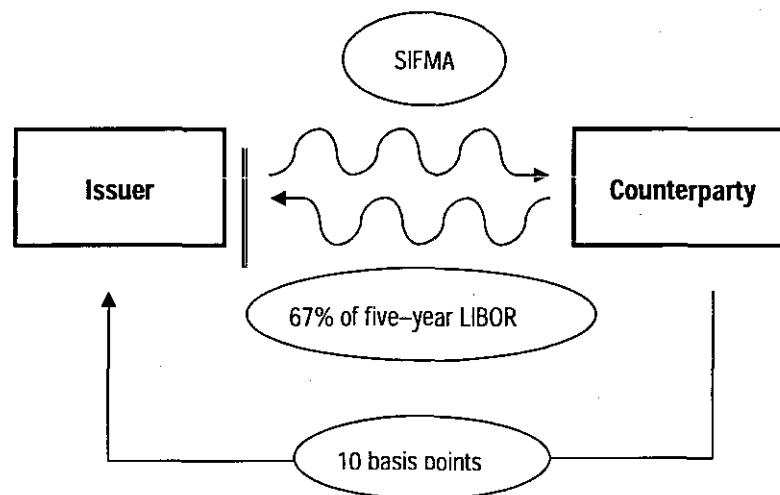


A CMS swap may involve an exchange of payments based on SIFMA and payments based on LIBOR, as in the following example.

*Example:*

Notional Amount:	\$30,000,000
Swap Term:	20 years
Issuer Pays:	SIFMA, reset weekly
Issuer Receives:	67% of five-year LIBOR plus 10 basis points, reset monthly
Payment dates:	Semiannual, each January 1 and July 1
Reset dates:	First Business Day of each month

In this example, on each payment date, the issuer *pays* the counterparty an amount based on the weighted average of monthly resets of SIFMA over the previous six months. On each payment date, the counterparty *pays* the issuer an amount based on the weighted average of 67% of monthly resets of five-year LIBOR over the previous six months *plus* 10 basis points multiplied by the notional amount.



**Rate Locks and Swaptions**

Municipal issuers enter into certain kinds of forward-starting interest rate hedges. These are generally designed to lock in the benefits of current interest rates for financings that are expected to be closed in the future.

**Forward Starting Swap:** The issuer enters into a swap contract with a counterparty, and the date on which the exchange of payments begins (the effective date) is deferred to a future date. The swap is most commonly a floating-to-fixed swap. In such a case, the fixed rate the issuer pays on the swap includes a premium for the forward start. Typically, there are two ways such a swap may be used as a rate lock. If the swap is "physically settled," the swap contract takes effect and the issuer issues variable rate bonds, hedged by the swap. If the swap is "cash settled," the parties terminate the swap, with an appropriate termination payment, if any.

**Swaption:** A swaption is an option to enter into or cancel a swap in the future. In most cases, the municipal issuer sells the swaption. In such a case, the issuer grants to the counterparty the option to enter into a swap on certain terms at a fixed date in the future. The counterparty generally makes a payment to the issuer designed to represent the present value of the difference between the strike rate stated in the option and the current market rate. The payment may be made in a lump sum at the time the swaption is entered into or may be paid over time. If the counterparty exercises the option, the parties enter into the swap. The issuer retains the upfront payment regardless of whether the counterparty exercises the option.

As with a forward-starting swap, an issuer may sell a swaption as a means to lock in current rates for a future refunding, thus capturing the value of redemption options attached to the bonds to be refunded. If the counterparty exercises the option, the issuer would refund the related bonds with variable rate bonds, which are hedged by the swap.

## Appendix B

---

### ADDRESSING SWAPS IN NEW ISSUE REPORTS

Moody's generally includes a discussion of interest rate swaps in a New Issue Report for related debt. The report will include essential terms of the swap. The following is an example:

*Counterparty:* ABC Bank

*Counterparty Rating:* Aaa

*Notional Amount:* \$30,000,000

*Changes in Notional Amount:* declines according to scheduled bond amortization

*Effective Date:* January 1, 2007

*Scheduled Termination Date:* January 1, 2027

*Issuer Pays:* 3.50% fixed

*Issuer Receives:* 67% of one-month LIBOR

*Payment dates:* semiannually, each January 1 and July 1

*Options to terminate:* None

Where material, the report will also include discussion of specific risks. For example, it may identify the following:

- The highest Collateral Posting Triggers for the issuer and/or counterparty and the related Thresholds
- Potential impact of additional basis spread, and how Moody's measures the issuer's ability to withstand stressful interest rate scenarios
- Potential termination risk, and how Moody's has compared termination exposure with the issuer's financial resources
- Sources of payment for the issuer's swap obligations, and whether payments are on parity with or subordinate to debt service on rated debt

## Appendix C

### PFG ANALYST SWAP GUIDE

The following is an example of the information an analyst may assemble in assessing a swap when detailed analysis is considered material. The information considered may vary among PFG rating teams.

Issuer: _____	Analyst: _____
Related Bond Issue (if any): _____	Date: _____
<b>DERIVATIVE DOCUMENTS:</b>	
ISDA Master Agreement	<input type="radio"/>
Schedule to ISDA Master Agreement	<input type="radio"/>
Confirmation*	<input type="radio"/>
Credit Support Annex (if any)*	<input type="radio"/>
Guarantee (if any)	<input type="radio"/>
<b>OTHER DOCUMENTS:</b>	
Termination Matrix (if applicable)	<input type="radio"/>
Issuer swap Policy (if applicable)**	<input type="radio"/>
<small>* Note: indicates core documents for specific series</small> <small>** Note: only need one copy of these documents (do not need for every deal)</small>	
<b>ITEMS GENERALLY FOUND IN THE CONFIRMATION:</b>	
What is the precise legal name of the swap counterparty? Counterparty's rating? Is the Counterparty a derivative products company (DPC)?	
Type? (e.g., swap, swaption, fixed-to-floating, collar, etc.)	
What is the notional amount? Is this amount expected to be reduced when bonds are redeemed? Is a schedule of changes in notional amount included?	
Fixed/floating swaps: What entity is the floating payor?	
What is the basis for calculating floating rate (e.g. LIBOR or SIFMA)? Formula used to calculate floating payments? Is there a floor or ceiling on floating payments?	
What entity is the fixed payor? What are the fixed rate payments?	
What are the payment dates?	
For basis swaps (or other): describe terms	
What is the swap start date? What is the scheduled swap termination date?	

Are scheduled swap payments on parity with or subordinate to debt service?

Are termination payments on parity or subordinate?

Does either party have an express option to terminate at market value? Under what circumstances?

What is the source of scheduled swap payments by the issuer? Is it limited to specific assets of the issuer?

What is the source of termination payments by the issuer? Is it limited to specific assets of the issuer?

#### ITEMS GENERALLY FOUND IN THE SCHEDULE OR IN THE CONFIRMATION

What additional or modified Events of Default and Additional Termination Events are specified for the issuer?

What method is specified for determining termination payments (e.g., Market Quotation/Second Method)? Are there special provisions for determining the amount of payment in any circumstances?

What additional or modified Events of Default and Additional Termination Events are specified for the counterparty?

What method is specified for determining termination payments (e.g., Market Quotation/Second Method)? Are there special provisions for determining the amount of the payment in any circumstances?

Does either party have an option to terminate at par at any time (without payment due as a result of the termination)? Under what circumstances?

Are there provisions to transfer the swap to a different counterparty under certain circumstances (for example, rating downgrade of a party)?

Is there a guarantee of the counterparty's obligations? Are there any conditions to the guarantor's obligations?

What is the frequency of payments under the swap?

#### ITEMS GENERALLY FOUND IN THE CREDIT SUPPORT ANNEX

Is the issuer required to post collateral? At what rating level is posting required, and at what thresholds for each rating level?

Is the counterparty required to post collateral? At what rating levels is posting required, and at what thresholds for each rating level?

#### MARKET TERMINATION:

Has an assessment been made of the level of potential exposure to termination payments?

Has the issuer (or its advisors) prepared a termination matrix showing sensitivities of the future market value of the swap to interest rate movements?

Has the issuer (or its advisors) been asked to provide any additional analysis of potential termination values?

**BASIS SPREAD**

Has an assessment been made of the level of potential exposure to basis spread?

If the swap may expose the issuer to tax risk, has an assessment been made of potential exposure to basis spread after changes in tax law or tax rates?

**ADDITIONAL ITEMS**

What is the mark-to-market value of existing swaps as of the date of the most recent audit? Is more current mark-to-market value of existing swaps needed?

## Appendix D

### INTEREST RATE STRESS MODEL

Moody's uses the following interest rate stress parameters as part of its analysis when changes in interest rate environments may be material. The model includes a *high-interest-rate scenario* and a *low interest-rate scenario* to test the effects of both relatively high and relatively low short-term interest rates on payments that are affected by levels of interest rates.

These interest rates are a starting point when changes in interest rates are material. They may be applied to evaluate the impact of a single swap, or to evaluate the impact of a portfolio of swaps. For example, they are used in measuring exposure to basis risk, such as when floating-to-fixed rate swaps are used to hedge interest rate risk for variable rate bonds. They may also be used as part of the analysis of basis risk for basis swaps and CMS swaps.

Moody's determined the rates that should be used by analyzing one-month LIBOR data from January 1970 through January 2006 and BMA (now SIFMA) data from July 1989 through January 2006. In addition, we separately reviewed data from January 1996 through January 2006, because this period included a prolonged period of low short-term interest rates.

The high, low and mean values, and the standard deviations, of the various samples were calculated. We then assigned several weighting scenarios to our results to adjust for substantial volatility in LIBOR over the 36 year period. Furthermore, the log-normal distribution of the sample was calculated and analyzed. We also considered the magnitude and duration of changes in interest rates. All of these factors were taken into account in order to determine the high and low interest assumptions for these parameters.

#### Low-Interest Scenario:

*Taxable Rates:* one-month LIBOR assumed to be 2.10%

*Tax-exempt Rates:* SIFMA assumed to be 1.68% (80% of the applicable taxable rate)

#### High Interest Rate Scenario: One of two different sets of assumptions may be used:

##### **Ramp-up Stress:**

##### *Taxable Rates:*

Starting point is current one-month LIBOR, then

Years 1-5: Increase in equal, straight-line increments for current LIBOR to 10.5%

Years 6-10: Hold at 10.5%

Years 11-15: Reduce in equal, straight-line increments from 10.5% to 7.5%

Years 16 on: Hold at 7.5%

*Tax Exempt Rates:* SIFMA is assumed to be 67% of applicable one-month LIBOR

Where tax risk is material, SIFMA is assumed to be 75% of applicable one-month LIBOR after 5 years

##### **Flat Rate Stress:**

*Taxable Rates:* one-month LIBOR assumed to be 8.6%

*Tax-exempt Rates:* SIFMA is assumed to be 67% of applicable one-month LIBOR

Where tax risk is material, SIFMA is assumed to be 75% of applicable one-month LIBOR after 5 years

**Trading Level of Variable Rate Bonds:** Where tax exempt variable rate bonds are involved, Moody's assumes that the bonds reset at the applicable SIFMA rate plus five basis points (or 10 basis points for bonds subject to Alternative Minimum Tax (AMT)).

The following pages illustrate the application of the model to a case involving tax exempt variable rate bonds combined with a floating-to-fixed rate swap based on one-month LIBOR. The same or similar interest rate assumptions may be used in other contexts.

## APPLYING MOODY'S BASIS AND TAX RISK MODEL

The following is an example of modeling variable rate bonds combined with a floating-to-fixed-rate swap to measure potential basis and tax risk. The model is used here to determine an additional "expense" expressed as different percentages of the notional amount at different times.

### First Scenario: Rising Interest Rates Using Ramp-Up

#### Assumptions:

Ramp Up one-month LIBOR from Current Levels to 10.5% over 5 years; Hold at 10.5% for five years; ramp back down over five years to 7.5% and then hold

SIFMA=67% of LIBOR for the first five years

Thereafter, SIFMA = 75% of LIBOR (to model Tax Risk)

#### Terms of the Transaction:

Actual One-Month LIBOR at Inception: 4.40%

#### Swap Terms

Term: 30 Year  
 Issuer Pays - Fixed Rate: 3.50%  
 Issuer Receives - Variable Index: 64% of One-Month LIBOR plus 0.25%

Bond Tax Status: Tax-Exempt AMT

#### Moody's Assumptions:

Assumed One-Month LIBOR: Varies  
 SIFMA as % of One-Month LIBOR:  
     Without tax risk: 67%  
     When tax risk applies: 75%

Bond Spread Over Index: 0.10%

Year:	One	Two	Three	Four	Five	six Through 10	11	12	13	14	15 and after
Assumed LIBOR Rates:	4.40%	5.62%	6.84%	8.06%	9.28%	10.50%	9.90%	9.30%	8.70%	8.10%	7.50%
Variable Rate Swap Payment Received: 64% of LIBOR plus 25 Basis points	3.07%	3.85%	4.63%	5.41%	6.19%	6.97%	6.59%	6.20%	5.82%	5.43%	5.05%
Variable Rate Payment on Bonds (No Tax Risk):	2.95%	3.77%	4.58%	5.40%	6.22%	7.04%	6.63%	6.23%	5.83%	5.43%	5.03%
Additional Expense (Receipt) (No Tax Risk):	-0.12%	-0.08%	-0.04%	-0.01%	0.03%	0.06%	0.05%	0.03%	0.01%	-0.01%	-0.03%
Tax risk: Variable Rate Payment on Bonds (With Tax Risk):						7.88%	7.43%	6.98%	6.53%	6.08%	5.63%
Additional Expense (Receipt) (With Tax Risk):						0.91%	0.84%	0.77%	0.71%	0.64%	0.57%
Additional Cost of Bond Spread Over Index:	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
Total Expense:	-0.02%	0.02%	0.06%	0.09%	0.13%	1.01%	0.94%	0.87%	0.81%	0.74%	0.67%
Swap Fixed Rate:	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Total Payment:	3.48%	3.52%	3.56%	3.59%	3.63%	4.51%	4.44%	4.37%	4.31%	4.24%	4.18%

This is an example; the correct payments for each transaction will depend on the terms of the transaction.



## APPLYING MOODY'S BASIS AND TAX RISK MODEL

### Second Scenario: High Interest Rates Using Flat Stress

**Assumptions:**

One-month LIBOR = 8.6%

SIFMA = 67% of LIBOR for the first five years

Thereafter, SIFMA = 75% of LIBOR (Tax Risk)

**Terms of the Transaction:**

One-Month LIBOR at inception: 4.4%

**Swap Terms**

Term:	30 Year
Fixed Rate:	3.50%
Variable Index:	64% of One-Month LIBOR plus 0.25%

Bond Tax Status:	Tax-Exempt	AMT
------------------	------------	-----

**Moody's Assumptions:**

Assumed One-Month LIBOR:	8.60%
SIFMA as % of One-Month LIBOR:	
Without tax risk:	67%
When tax risk applies:	75%

Bond Spread Over Index:	0.10%
-------------------------	-------

Year:	One	Two	Three	Four	Five	six Through 10	11	12	13	14	15 and after
Assumed LIBOR Rates:	8.60%	8.60%	8.60%	8.60%	8.60%	8.60%	8.60%	8.60%	8.60%	8.60%	8.60%
Variable Rate Swap Payment Received: 64% of LIBOR plus 25 Basis points	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%
Variable Rate Payment on Bonds (No Tax Risk):	5.76%	5.76%	5.76%	5.76%	5.76%	5.76%	5.76%	5.76%	5.76%	5.76%	5.76%
Additional Expense (Receipt) (No Tax Risk):	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
<b>Tax risk:</b>											
Variable Rate Payment on Bonds (With Tax Risk):						6.45%	6.45%	6.45%	6.45%	6.45%	6.45%
Additional Expense (Receipt) (With Tax Risk):						0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
Additional Cost of Bond Spread Over Index:	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
<b>Total Expense:</b>	<b>0.11%</b>	<b>0.11%</b>	<b>0.11%</b>	<b>0.11%</b>	<b>0.11%</b>	<b>0.80%</b>	<b>0.80%</b>	<b>0.80%</b>	<b>0.80%</b>	<b>0.80%</b>	<b>0.80%</b>
Swap Fixed Rate:	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Total Payment:	3.61%	3.61%	3.61%	3.61%	3.61%	4.30%	4.30%	4.30%	4.30%	4.30%	4.30%

This is an example; the correct payments for each transaction will depend on the terms of the transaction.

## APPLYING MOODY'S BASIS AND TAX RISK MODEL

### Third Scenario: Low Interest Rates

**Assumptions:**

One-Month LIBOR = 2.10%

SIFMA = 80% of LIBOR

**Terms of the Transaction:**

One Month LIBOR at Inception:	4.40%
-------------------------------	-------

**Swap Terms**

Term:	30 Year
Fixed Rate:	3.50%
Variable Index:	64% of One-Month LIBOR plus 0.25%

Bond Tax Status:	Tax-Exempt	AMT
------------------	------------	-----

**Moody's Assumptions:**

Assumed One-Month LIBOR:	2.10%
SIFMA as % of One-Month LIBOR:	80%

Bond Spread Over Index:	0.10%
-------------------------	-------

	One Through 30
<b>Year:</b>	
<b>Assumed LIBOR Rates:</b>	<b>2.10%</b>
<b>Variable Rate Swap Payment Received:</b>	
64% of LIBOR plus 25 Basis points	1.59%
<b>Variable Rate Payment on Bonds (No Tax Risk):</b>	<b>1.68%</b>
<b>Additional Expense (Receipt):</b>	<b>0.09%</b>
<b>Basis Expense:</b>	<b>0.10%</b>
<b>Total Expense:</b>	<b>0.19%</b>
Swap Fixed Rate:	3.50%
Total Payment:	3.69%

*This is an example; the correct payments for each transaction will depend on the terms of the transaction.*

**000037**

**PAGE INTENTIONALLY LEFT BLANK**

To order reprints of this report (100 copies minimum), please call 1.212.553.1658.  
Report Number: 104186

**Author**

*Bil Fitzpatrick*

**Editor**

*Naomi Richman*

**Production Specialists**

*Yung Louie  
Cassina Brooks*

© Copyright 2007, Moody's Investors Service, Inc. and/or its licensors and affiliates including Moody's Assurance Company, Inc. (together, "MOODY'S"). All rights reserved. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY COPYRIGHT LAW AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, such information is provided "as is" without warranty of any kind and MOODY'S, in particular, makes no representation or warranty, express or implied, as to the accuracy, timeliness, completeness, merchantability or fitness for any particular purpose of any such information. Under no circumstances shall MOODY'S have any liability to any person or entity for (a) any loss or damage in whole or in part caused by, resulting from, or relating to, any error (negligent or otherwise) or other circumstance or contingency within or outside the control of MOODY'S or any of its directors, officers, employees or agents in connection with the procurement, collection, compilation, analysis, interpretation, communication, publication or delivery of any such information, or (b) any direct, indirect, special, consequential, compensatory or incidental damages whatsoever (including without limitation, lost profits), even if MOODY'S is advised in advance of the possibility of such damages, resulting from the use of or inability to use, any such information. The credit ratings and financial reporting analysis observations, if any, constituting part of the information contained herein are, and must be construed solely as, statements of opinion and not statements of fact or recommendations to purchase, sell or hold any securities. NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER. Each rating or other opinion must be weighed solely as one factor in any investment decision made by or on behalf of any user of the information contained herein, and each such user must accordingly make its own study and evaluation of each security and of each issuer and guarantor of, and each provider of credit support for, each security that it may consider purchasing, holding or selling.

MOODY'S hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MOODY'S have, prior to assignment of any rating, agreed to pay to MOODY'S for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,400,000. Moody's Corporation (MCO) and its wholly-owned credit rating agency subsidiary, Moody's Investors Service (MIS), also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually on Moody's website at [www.moody's.com](http://www.moody's.com) under the heading "Shareholder Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

June 27, 2007

# Public Finance Criteria: Municipal Swaps

**Primary Credit Analyst:**

Peter Block, Chicago (1) 312-233-7040; peter\_block@standardandpoors.com

**Secondary Credit Analysts:**

Eden Perry, New York (1) 212-438-7967; eden\_perry@standardandpoors.com

Colleen Woodell, New York (1) 212-438-2118; colleen\_woodell@standardandpoors.com

## Table Of Contents

---

Swap Structures

Source Of Swap Payment And Swap Lien

Legality

Management

Swap Management Policies Versus Swap Plans

Swap Management Policy

Management Check List

Net Variable Rate Debt Calculation

Swap Insurance

# Public Finance Criteria: Municipal Swaps

(The following replaces criteria published on May 31, 2006.)

Interest-rate swaps are being used in conjunction with bond issues to save interest costs, increase financial flexibility, synthetically refund bond issues, and access various investor markets.

However, swaps expose issuers to counterparty credit risk, termination risk, basis risk, rollover risk, and for many housing bond issuers, amortization risk. If used to speculate on the direction of interest rates, or if they are not structured properly, swaps can reduce an issuer's ability to pay debt service on time, thereby affecting its credit quality. Standard & Poor's Ratings Services assigns Debt Derivative Profiles (DDP) to all U.S. municipal bond issuers that have engaged in swap or other derivative transactions. The DDP scoring methodology codifies the following Swap Criteria and is discussed in an accompanying section.

## Swap Structures

The most common types of swaps in the municipal market are floating-to-fixed-rate swaps and fixed-to-floating rate swaps. The floating-to-fixed rate swaps are typically used to create synthetic fixed-rate debt while the fixed-to-floating rate swaps are typically used to create synthetic variable rate debt. Other common swap structures are also described below, including forward starting swaps, rate locks, basis swaps, and swaptions.

### Floating-to-fixed swaps

Synthetic fixed rate debt is created through use of fixed payer, or floating-to-fixed rate swaps. This structure provides a low cost alternative to issuing conventional fixed-rate debt, by allowing the issuer to access the short-term debt market. The issuer issues variable rate debt and hedges its floating-rate exposure with floating-to-fixed-rate swaps. Under floating-to-fixed swaps the variable rate index received by the issuer from the counterparty matches or closely approximates the variable rate on the debt, leaving the issuer with a fixed-rate exposure for the term of the swap and, in most cases, term of the bonds.

### Fixed-to-floating swaps

Synthetic variable rate debt is created through use of floating payer, or fixed-to-floating-rate swaps. The synthetic floating-rate debt structure provides a low cost alternative to issuing variable-rate debt. It creates nonputable variable rate debt and allows the issuer to avoid variable-rate program costs, such as credit, liquidity, and remarketing or auction agent fees. *This structure is used to convert existing fixed-rate debt to a variable rate or as part of a new issuance.* Some issuers take advantage of this structure to hedge negative arbitrage on large cash and short-term asset positions.

### Forward starting swaps

Forward starting swaps are typically structured as floating-to-fixed swaps for synthetic advance refundings of fixed rate debt. This structure provides an alternative to conventional advance refundings. Some municipal issuers—such as utilities, airports, and health care issuers—that are precluded from carrying out an advance refunding or have used up their advance refunding capacity can synthetically advance refund bonds using a forward starting swap. Under this structure, the issuer enters into a forward starting floating-to-fixed rate swap contract to lock in a fixed rate. On the swap's effective date, which coincides with the bond's call date, refunding variable rate bonds are issued, and the proceeds are used to call the outstanding higher-coupon fixed rate bonds. The swap payments begin

on the call date, effectively converting the floating-rate exposure of the issuer to a fixed rate.

### Rate locks

Interest rate locks structured as floating-to-fixed rate swaps are gaining popularity for advance or current refundings as well as new money issues where the issuer wants to lock in a current low fixed interest rate. In the rate lock swap structure, the issuer enters into a long-dated floating-to-fixed rate swap with a predetermined early termination date at market. The fixed rate for the issuer's financing is locked in on the date on which the issuer enters into the floating-to-fixed rate swap, whereas the pre-determined early termination date under the swap coincides with the date of planned issuance of fixed rate debt. Upon termination, the issuer pays or receives a termination amount equal to the fair value of the swap on the termination date. Issuers either receive a termination amount from the counterparty (to the extent rates have risen higher than the locked in fixed rate) or pay a termination amount to the counterparty (if rates have declined lower than the locked in rate). Upon termination of the swap, the issuer will issue fixed rate debt at the prevailing market rate. The swap's termination amount paid to the counterparty or received from the counterparty causes the issuer's total debt service (principal and interest) to be economically equivalent to having issued fixed rate bonds on the date the rate lock swap was executed. Because termination payments are specifically designed to mitigate interest rate risk and do not, in and of themselves, materially impact the issuer's financial condition, Standard & Poor's is not generally concerned about termination risk under rate lock structures.

### Basis swaps

In recent years, some issuers have entered into basis swaps to hedge fixed rate or floating rate debt exposure. Basis swaps, or floating-to-floating swaps, are crossing positions where the issuer pays a floating rate, usually equal to the BMA index, and in exchange, receives another floating rate, usually equal to a percentage of LIBOR (e.g. 68%). In some cases, different percentage points (e.g. 20 basis points) are added to the payer or receiver rates; these swaps are referred to as fixed spread basis swaps. Another type of basis swap structure are leveraged basis swaps, which apply a leverage factor to the payer and receiver rates effectively increasing cash flow volatility.

All basis swap structures involve the risk that the prevailing floating rate paid to the counterparty will be higher than the prevailing rate received from the counterparty. Issuers that use basis swaps to hedge fixed rate exposure typically do so as a synthetic current refunding of fixed rate bonds that for tax law reasons cannot be refunded, or bonds for which the issuer does not want to incur costs associated with a traditional refunding. Under the synthetic current refunding structure, the issuer's goal is to achieve an economic return under the basis swap, which approximates the debt service savings that would have occurred if the targeted fixed rate bonds were traditionally refunded. Issuers that use basis swaps to hedge floating rate exposure typically do so with the goal of eliminating basis exposure by modifying the floating receiver leg of existing floating-to-fixed rate swaps. In this structure, the issuer enters into a basis swap with a floating receiver rate that better matches the floating rate paid on outstanding variable rate debt.

Because of the dynamic interplay between BMA and LIBOR over time, all basis swaps entail a high degree of cash flow volatility. Therefore, issuers that enter into basis swaps must have a revenue stream sufficient to absorb year-to-year losses or lower than expected returns under these structures without materially affecting cash flow and liquidity.

## Swaptions

A swap option, or swaption, is an option to enter into or terminate a swap in the future. Swaptions associated with off-market swaps are priced based on option pricing theory, which involves time value and volatility, among other metrics. Issuers often use swaptions to hedge the expected issuance of debt in the future for specific purposes. In exchange for entering into a swaption, the issuer is paid an upfront premium, which represents the time value of the option to enter into a future swap with the counterparty and the off-market nature of the swap. Issuers tend to use swaption premiums for reserves, operations, or capital financing needs. Once a counterparty has purchased a swaption, it now has the right to exercise the option based on future dates and/or interest rate conditions. The issuer, as option seller, has a liability equal to the premium received for the swaption, which will be amortized over the life of the swap, should the swap become effective. However, the liability will disappear to the extent the swap is not effectuated and the option expires worthless. Also, depending upon the credit characteristics of the issuer, a large termination payment liability exists to the extent the debt financing does not occur and the swap becomes an unusable hedge. Therefore, issuers that sell swaptions should be certain that the financing for which the swaption was written will occur to coincide with a potential exercise of the option by the counterparty.

## Source Of Swap Payment And Swap Lien

Before entering into a swap, the issuer's management should identify the revenue source for making net swap payments and budget for them. The source of termination payments should also be identified. Revenue bond issuers should include the fixed or variable swap payments in the rate covenant and additional bonds test covenants to avoid swaps having a negative impact on the ability of the issuer to pay debt service. Typically, for GO bond issuers, the swap payment source is the general fund, and for revenue bond issuers, the swap payments come from the same revenue source that supports the debt service on the bonds. The net swap payments should be structured so that they are junior to or on parity with the debt service obligation to ensure that debt service payments are not affected. Termination payments are typically on parity or subordinate to debt service. Termination risk and mitigation strategies are discussed in detail below.

## Legality

It is important that the issuer has the appropriate legal power to enter into and properly authorize all swap contracts. Illegality can result in the swap being terminated, exposing the issuer to a potentially large termination payment and/or floating-rate exposure. Most states have statutes that give the issuers the authority to enter into swap agreements. However, if the law is ambiguous, Standard & Poor's suggests that an issuer verify its legal authority for swaps.

## Swap structure risks

Standard & Poor's has identified six general risks associated with swap contracts for municipal bond issuers. These risks include:

- Counterparty risk;
- Rollover risk;
- Economic viability (basis/tax risk);
- Amortization risk;
- Termination risk; and



- Collateral posting risk.

Standard & Poor's will focus on all of these credit factors when analyzing a swapped bond transaction. As part of this process, Standard & Poor's must receive various documents necessary to analyze the terms of the contracts (see "Swap Legal Documentation Review Process" below). Furthermore, we will ask all issuers who enter into swaps or other hedging contracts to prepare a Swap Management Plan (see "Swap Management Plan" below). A discussion of the risks associated with swaps follows.

### Counterparty risk

Counterparty risk is the risk that the swap counterparty will not fulfill its obligation to honor its obligations as specified under the contract. Under a floating-to-fixed swap, for example, if the counterparty defaults, the issuer would be exposed to an unhedged variable rate bond position, and in the case of full two-way termination and negative swap valuation, could owe the counterparty a termination payment. The creditworthiness of the counterparty is indicated by its issuer credit rating (ICR). Standard & Poor's looks for swap counterparties that are rated at least 'BBB/A-2' for swap-independent transactions and at least 'A/A-1' for swap dependent transactions. Most swapped municipal bonds rated by Standard & Poor's are considered swap-independent since failure of the swap counterparty does not preclude the issuer from paying the debt. The degree of swap-dependence for any given transaction, however, is determined by the creditworthiness of the pledged revenue source as well as the structure of the bonds. Many structured finance transactions, for example, are considered highly swap dependent since bond debt service is structured assuming the swap remains in place for the life of the transaction.

In cases where a counterparty is a "terminating" derivative product company (DPC), as opposed to a continuing entity, Standard & Poor's ICRs for these entities will include a 't' subscript (e.g. 'AAAt'). The 't' subscript indicates that the DPC could terminate its existence upon short notice to bond issuers with no penalty. If an issuer enters into a swap contract with a terminating DPC, Standard & Poor's will assume that termination of the DPC itself could occur at any time and that the swap would have a negative valuation, thereby requiring the issuer to make a termination payment to the counterparty. Therefore, issuers that enter into a swap with a terminating DPC should demonstrate sufficient liquidity to handle termination payments at any time. Swap-dependent bonds and non-plain vanilla swaps are held to a higher rating threshold due to the potential for decreased liquidity of the swap should the swap counterparty need to be replaced. In order to mitigate rating concerns following a counterparty downgrade to below the minimum rating threshold, counterparties should provide collateral, if swap termination or replacement of the swap provider by the issuer is not possible or economic. Many counterparties are in fact required to post collateral at relatively higher rating levels under credit support documents, thereby mitigating counterparty risk for the issuer.

Standard & Poor's will determine the appropriate counterparty-rating threshold for each transaction based on whether or not the issue is swap-dependent or if the swap is plain vanilla. The applicable counterparty rating thresholds should be defined in the bond and swap documents, as well as the issue's swap management plan, as the minimum rating for an eligible swap provider, with appropriate trigger mechanisms for replacement, collateralization, swap insurance, or termination.

Although most counterparties that participate in the municipal swap market are highly rated, above 'A', as the municipal swap market has grown, Standard & Poor's is concerned that some issuers have a growing and significant swap portfolio and single-entity credit exposure, some with lower rated counterparties. For this reason, Standard & Poor's looks for issuers to manage its counterparty exposure to lower rated counterparties in absence of low

collateral thresholds. Therefore, for counterparties rated lower than 'A/A-1' the concentration limit is 50% of risk adjusted notional (the concept of risk adjusted notional amounts is discussed in the DDP section). Concentration above 50% of risk adjusted notional for counterparties rated lower than 'A/A-1' may be mitigated by full value collateral posting by counterparties, if swap termination or replacement of the counterparty by the issuer is not possible or economic, under the terms of the swap contract.

### **Basis risk**

Basis risk refers to a mismatch between the interest rate received from the swap contract and the interest actually owed on the issuer's bonds. Basis risk can occur with any type of debt derivative, specifically floating-to-fixed and fixed-to-floating swaps. For example, in a floating to fixed rate swap, the risk is that the counterparty's variable interest payments will be less than the variable interest payments actually owed on the issuer's bonds. Most floating-to-fixed rate swaps require the issuer to pay a fixed interest rate and in return receive a floating rate based on a percentage of one month LIBOR or the Weekly BMA Municipal Swap index. Most "tax-exempt" swaps are referred to as "BMA swaps" or "percentage of LIBOR" swaps. In some cases, issuers secure "cost of funds" swaps, where the counterparty pays the exact interest rate on the bonds. If the swap is not a cost of funds swap, the mismatch between the actual bond rate and the swap interest rate could cause financial loss in the form of additional debt service for the issuer. This mismatch could occur for various reasons including, increased supply of tax-exempt bonds, credit quality deterioration of the issuer, or a reduction of federal income tax rates for corporations and individuals.

### **Tax event and market risk**

All issuers which issue variable rate bonds that trade based on the BMA index inherently accept risk stemming from changes in marginal income tax rates. This is due to the tax code's impact on the trading value of tax-exempt bonds. This risk is also known as "tax event" risk, a form of basis risk under swap contracts. Percentage of LIBOR, certain BMA swaps, and basis swaps, can also expose issuers to tax event risk. Some BMA swaps have tax event triggers which can change the basis under the swap to a LIBOR basis from a BMA basis.

Based on historical evidence, Standard & Poor's believes that any downward shift in the top federal income tax rate for individuals and corporations could cause all variable rate bond issuers to experience "tax event" risk. In addition to tax event risk, extremely low interest rates could expose issuers engaging in swaps based on BMA and LIBOR to experience losses due to rate compression between the two indices. For this reason, Standard & Poor's routinely reviews its variable rate tax-exempt bond price assumptions in order to determine a stressful relationship between BMA and LIBOR to account both for tax and market event risk. Under these criteria, all variable rate debt issuers should assume that income tax rates are lowered over time such that the ratio of Weekly BMA to one month LIBOR increases to 75%. This assumption is incorporated into the Economic Viability component of Standard & Poor's DDP analysis (see "Public Finance Criteria: Debt Derivative Profile").

### **Rollover risk**

Rollover risk is the risk that the swap contract is not coterminous with the related bonds. In the case of the synthetic fixed rate debt structure, rollover risk means that the issuer would need to re-hedge its variable rate debt exposure upon swap maturity and incur re-hedging costs. The issuer should have concrete strategy to account for rollover risk. Otherwise, Standard & Poor's will assume that bonds will be unhedged at the time of swap maturity. The issuer can mitigate rollover risk by closely monitoring the interest rates and by having policies in place to extend the swap or enter into a new swap if the rates drop. The strategy of using medium-term swaps to fix the variable rate for a five-to-10-year period does not eliminate the rollover risk, but gives the issuer additional financial flexibility,

reduces termination risk, and could result in a lower fixed rate than can be obtained through a long-dated swap.

The issuer can fully avoid rollover risk by entering into long-dated swaps (those with a greater than 10 years) whose term matches that of the bond term, thus locking the rates for the life of the bonds. However, this strategy contains hidden costs. Issuers using long-dated swaps give up some ability to refund the debt and to take full advantage of declining interest rates, unless the swap is structured with an optional cancellation clause.

### **Amortization risk**

Amortization risk represents the cost to the issuer of servicing debt or honoring swap payments due to a mismatch between bond principal amortization and the swap notional amount amortization. Amortization risk is characteristic of swaps used to hedge variable rate bonds issued by state housing finance agencies for single-family mortgages, although it can also occur with variable rate bonds issued by other revenue bond issuers to finance other amortizing assets. Amortization risk occurs to the extent bonds and swap notional amounts become mismatched over the life of a transaction. This could occur to the extent an issuer has used bond proceeds to finance an asset that is liquidated or prepaid and used to redeem bonds in advance of the swap notional schedule, causing an unhedged swap position.

In this case, the issuer would continue to owe payments under the swap with no asset to cover such payments. Conversely, the issuer could be faced with some unhedged variable rate bonds to the extent the financed asset does not prepay as originally intended or generate the expected cash flow to repay bonds in accordance with the pre-set swap notional schedule. This scenario is most common in single-family mortgage bonds where principal prepayments are lower than expected. Amortization risk is a potential risk, which could expose the issuer to additional payments, and potentially force the issuer to terminate the swap prior to maturity under unfavorable market conditions. The amount of loss exposure due to amortization risk is determined on a case-by-case basis depending on the purpose of the issue and the issuer's intended technique to mitigate this risk.

Standard & Poor's must be comfortable that the issuer will still be able to service the debt or swap in the absence of the hedge or financed asset respectively. Assuming the issuer will not terminate the swap in the event of a mismatch, reserves or cash flows must demonstrate sufficiency to cover the worst-case amortization risk scenario.

### **Termination risk**

Termination risk is the risk that the swap could be terminated early by the counterparty due to any of several credit events, which may include issuer ratings downgrades, covenant violation, bankruptcy, swap payment default, and default events as defined in the issuer's bond indenture. These events are referred to as involuntary termination, as opposed to voluntary termination. (Discussed below in Termination Analysis).

Standard & Poor's will analyze each swap contract's legal provisions prior to execution to ensure that the events of default or termination that trigger an involuntary termination are remote possibilities.

The events of default and termination, which could lead to involuntary termination of the contract should ideally only include the "big four" termination clauses:

- Failure to pay;
- Bankruptcy;
- Merger without assumption; and
- Illegality.

The aforementioned events are typically considered remote events since Standard & Poor's factors these aspects into the rating on the debt. Standard & Poor's may consider other events of default and termination to be remote events on a case-by-case basis, depending on the credit profile of the issuer and the ratings on the bonds.

These events may include:

- Additional Termination Event of a Ratings Downgrade to below a certain rating;
- Breach of agreement;
- Misrepresentation;
- Cross default; and
- Default under a specified transaction.

To the extent that Standard & Poor's cannot establish the remoteness of an event of default or event of termination, which would trigger involuntary termination of the swap contract, this possibility will be assumed under the swap and scored a '4' in the termination and collateral posting risk section of the DDP. In this case, Standard & Poor's would assume that bonds are unhedged and furthermore, that the issuer would have to pay a termination fee to the counterparty. Standard & Poor's will also analyze the conditions under which the issuer entered into the swap to determine the likelihood of voluntary termination under adverse market conditions, such as in the case of a swaption sold to a dealer under fiscal duress. If this is the case, this swap will also be scored a '4' during the DDP process.

Remedies available to the swap counterparty resulting from an issuer defaulting on its swap obligation should not infringe on bondholders' rights. These remedies should be limited to the swap agreement and should not be written into or cross-defaulted to the bond indenture. Depending on how interest rates at the time of termination compare with the fixed rate on the swap, the issuer could owe a termination payment to the counterparty or receive a termination payment from the counterparty.

### **Collateral posting risk**

Collateral posting risk is the risk that the issuer is required to post collateral in favor of the swap counterparty in advance of a swap termination event and final bond repayment. Collateral posting risk is a double-edged sword for many issuers. On the one hand, collateral postings can be a credit positive since these reserves mitigate a sudden liquidity drain of having to make a large termination payment in the event of swap termination. On the other hand, collateral posting poses a credit risk as some issuers credit quality would be impacted by collateral posting in the same way credit would be impacted following a termination payment.

Many swap documents have symmetrical credit provisions, requiring issuers to post collateral at identical rating thresholds as the swap counterparties. Although important from a swap counterparty's perspective for protection against issuer termination, collateral posting in advance of termination is problematic from a ratings perspective. This is because in the event of collateralization by the issuer, swap providers effectively become senior secured creditors, thereby impairing bondholder protection. To the extent collateralization by issuers impairs bondholder protection materially, Standard & Poor's will take this into account during the ratings process. However, in the event collateralization does not impact liquidity materially, termination risk would be fully mitigated and therefore, represent a credit positive. Standard & Poor's DDP scoring methodology captures the likelihood of collateral posting risk as more fully described below.

**Involuntary termination analysis**

If Standard & Poor's considers involuntary termination to be a possibility, as indicated by a overall DDP score of '3' or '4' or a termination and collateral posting risk score of '3' or '4', this risk must be quantified through analysis of the swap's maximum potential exposure (MPE) provided by the issuer. Analysis of termination risk and its impact on the issuer's rating is covered in the DDP criteria.

**Voluntary terminations**

Although any swap is callable at any time if both parties agree to the cancellation and cash settlement has occurred, municipal swaps typically are not optionally callable at any time for any reason by either party, without the other party's consent, unless a specific option to do so is built into the contract itself. Issuers typically need to purchase this option from counterparties. Standard & Poor's looks to see that issuers build market price optional termination clauses into swap documents, which will give them flexibility for cancelling the swap should this become necessary, either for the refunding of associated bonds or other market-driven reasons. In most cases, optional terminations of swaps occur to the extent the termination results in an economic benefit to the issuer, even if a termination amount is paid to the counterparty.

**Termination payment source and lien**

Much focus is placed on the early termination of swap contracts. While the probability of this risk will be scored in the DDP through a rating transition analysis, it is important for issuers to think through a contingency plan if the swap does unwind and the issuer will owe a settlement amount that is due immediately. Many bond transactions that include a swap make the lien of the swap payments and termination payment on parity with the debt service. This does not cause Standard & Poor's great concern if the issuer has revenue-raising capability and good liquidity. It also is not a concern if the swap termination events have been limited to credit events that are being reflected in the rating on the bonds. However, on the other end of the spectrum are the balance sheets that could not withstand a large cash outflow in a month's notice.

**Involuntary termination risk mitigation strategies**

Two of the most common ways to mitigate the effect of termination payments to an issuer are subordinating termination payments to the debt service on the bonds and including provisions in the swap agreement that allow the issuer to stretch out the payments over a period of time.

**Subordinated lien**

Since the termination payment can be large, and it is difficult to predict the timing and size of the payment, cash settlement of a termination payment can be subordinate to debt service. While a subordinated lien will get the issuer over the hurdle of payment of debt service for that period of time, it is important to note that the settlement payment to the counterparty still must be paid in full. This could hurt the issuer's liquidity and therefore impair its ability to pay debt service in the future.

**Amortization of termination payment**

This alternative focuses on the issuer's financial flexibility to withstand the cost of an early termination regardless of its capacity to increase rates and charges. An issuer that has limited liquidity resources should include provisions in the swap agreement that allows the issuer to pay the termination value over a period of time. A stress test of an issuer's income and cash flow statements is done to determine the amount of cushion that is available to pay additional unexpected cash settlement. The worst-case termination value would be used in determining the amount and term of the payment structure. For example, repayment terms could be a five-year term with an annual

maximum payment of \$10 million.

The issuer can also reduce termination risk by:

- Entering into a swap with a strong counterparty;
- Limiting the termination triggers and events of default;
- Reducing the term of the swap; or

Developing contingency plans for making the termination payment.

#### Suggested Documentation For Variable Rate Debt And Swaps

- (1) Cash flow projections as discussed under "Cash Flows."
- (2) Debt Management Plan
- (3) Swap Management Plan
- (4) Swap legal documents:
  - Bond Trust Indenture
  - ISDA Master Agreement
  - Schedule with Confirmation

© Standard & Poor's 2007.

## Management

One of the most important aspects of the analysis of the use of swaps is the evaluation of the understanding and expertise that management contributes. Managing derivatives like interest rate swaps requires an ongoing commitment from the issuing entity's senior executives. All senior management—not just the chief financial officer—should become familiar with the risks and rewards of the derivatives being considered. Because of the complexities involved, some small issuers may not be in a position to develop the necessary expertise and systems to adequately manage some derivatives. In fact, smaller issuers' capital needs generally are not large enough to justify the sizable fixed costs associated with putting together these types of transactions. Therefore, Standard & Poor's will request a discussion of the issuer's Swap Management Plan and Policies as part of the DDP process.

## Swap Management Policies Versus Swap Plans

It is important to distinguish between a swap management policy and a swap management plan. A swap policy is a formally approved written document intended to guide management decisions over time, whereas a swap plan is similar to a plan of finance, intended to rationalize or explain specific transactions done within the swap policy's parameters. Because of this distinction, the two serve different purposes and are viewed differently in the DDP scoring process. A formally adopted swap policy details operating parameters for entering into and executing swaps, outlines exactly what types of transactions can and cannot be entered into, lays out credit decision matrices and levels of maximum risk exposure, and is part of institutionalized management and financial policies.

## Swap Management Policy

Issuers can adopt formal swap management policies and procedures that simultaneously minimize the risks and maximize the rewards from swaps. A meaningful and effective swap policy includes the following components:

- Purpose
- Authorization
- Controls
- Oversight
- Disclosure
- Strategy

### Purpose

A swap policy should include a purpose statement that indicates the reasons for entering into interest rate derivative transactions. Answering the question, "why does using swaps and other debt derivatives make sense?" will allow the issuer to outline the goals and expectations of hedging fixed or variable rate exposure with swaps in relation to its portfolio of debt instruments. Issuers should state under what scenarios and opportunities derivatives might be used to hedge interest rate risks. With these goals, the issuer provides an important measure of transparency regarding the use of swaps in the broader context of the municipal entity's financial operations.

### Authorization

It is important that the issuer have the appropriate legal power to enter into swap contracts. An issuer's swap policy should clearly cite the legal reference or statute that provides authorization. Also, the issuer should outline any formal authorization process for entering into interest rate swap agreements.

### Risk controls

Management should outline policies designed to minimize the liquidity and cash flow risks associated with swaps. The revenue source for making net swap payments should be identified and budgeted for once the swap structure is stressed against different interest rate scenarios and payments can be estimated. The source of termination payments should also be identified with an attendant "liquidity-at-risk" policy, outlining the maximum amount of liquidity reserves, which could be placed at risk should a collateral posting or termination event occur.

Risk mitigation strategies could include the following parameters:

- Acceptable additional termination events, including maximum rating triggers;
- Use of insurance or collateral to protect counterparties, and if so, what are the minimum thresholds;
- Cross default provisions;
- Termination payment terms (subordinate and/or payout as lump sum or amortized over time); and
- Counterparty rating minimums and other credit protection provisions, such as collateral requirements or third-party guarantees.

### Oversight

Managing derivatives, such as interest rate swaps, requires an ongoing commitment from the issuing entity's senior executives and governing body. All senior management and officials – not just the chief financial officer – should become familiar with the risks and rewards of the derivatives. As part of a swap policy, an issuer should delineate what process it will follow to consider entering into swaps and which positions have direct and indirect oversight of

the real-time management of swaps. In terms of ongoing oversight, issuers should routinely monitor swaps under current and forecasted interest rate environments, in order to gauge potential cash flow gains and losses as well as market opportunities for voluntary terminations and restructurings. Market valuations of derivatives should also be routinely calculated.

### Disclosure

Issuers should commit to continually disclose all aspects of derivatives position in accordance with GASB guidelines, or FASB, as applicable. Currently, GASB's 2003 Technical Bulletin ("2003-01- Disclosure Requirements for Derivatives Not Reported at Fair Value") provides guidelines for adequate disclosure of pertinent information related to derivatives. In addition, at the time of a rating review, management should be prepared to discuss the details of the swap plan and plan of finance and state the current and future economic viability of the swaps in addition to the likelihood of voluntary or involuntary termination during the course of the current and upcoming fiscal year.

### Strategy

The issuer should outline the different types of swaps or derivatives that would be included within a swap plan; that is the types of structures that could be considered when presenting an opportunity for risk management (e.g., in which interest rate environments) and how they should be used (e.g. natural hedges, basis swaps or synthetic refundings, rate locks, synthetic fixed and variable, etc.) in the broader context of the capital financing plan. The desirable capital structure of variable to fixed-rate debt should also be determined as a percentage of total debt outstanding (net variable exposure).

## Management Check List

Addressing the following issues will strengthen the swap management policy:

- Formal approval of written documents by the issuer's governing body;
- Swap risks identified and discussed in the context of the issuer's financing plans;
- Annual management review and discussion of hedging strategies;
- Commitment to complete and comprehensive disclosure of swaps in audited financial statements above and beyond required GASB or FASB parameters;
- Monitoring of swaps with semi-annual valuation by a third party
- Policies on legal provisions, including optional swap terminations, collateral, or swap insurance;
- Counterparty diversification or a minimum ratings policy for counterparties; and
- A net variable rate exposure policy.

## Net Variable Rate Debt Calculation

Standard & Poor's believes that quantification of both balance sheet and cash flow risks associated with variable rate debt is necessary to properly evaluate an issuer's financial flexibility resources when entering into swaps. The quantification process includes determining net variable rate and short-term debt. Once quantified, the overall credit impact of variable rate debt and swaps can be factored into an issuer's rating. This evaluation process will be made on a case-by-case basis.



### Net variable rate and short-term debt exposure ratio

Standard & Poor's monitors an issuer's use of variable rate debt as part of the ratings process through a net variable interest rate exposure ratio, which measures the potential risk to an issuer's revenue stream and reserve levels resulting from rising variable rates. The ratio is calculated on a current and pro forma basis to gauge prospective levels of variable exposure, given either proposed derivatives or additional bonds.

The net variable interest exposure ratio primarily focuses on debt and debt derivatives. Variable rate and short-term debt includes commercial paper, unhedged variable rate bonds, and synthetic variable rate debt. Unhedged variable rate bonds include those bonds, which are not hedged through floating-to-fixed interest rate swaps or variable rate investment assets. Synthetic variable rate bonds consist of traditional fixed rate bonds, which are converted to variable rate bonds through fixed-to-floating rate swaps. Any variable rate bonds that are converted to fixed rate debt through a swap can be netted from variable rate liabilities.

In addition, if the issuer can demonstrate historical sufficiency of offsetting principal and interest coverage from short-term and variable rate investment assets held in unrestricted, non-operating accounts, these assets may be netted from variable rate liabilities. Earnings on short-term or variable rate investments are typically well correlated to variable interest owed on bonds. We consider non-operating accounts, those accounts, which the issuer holds as unrestricted funds for true surplus reserve or hedging purposes only. Investments in those accounts should be highly liquid and invested in short-term securities with maturities of one year or less. Assets held in operating, capital, or debt service purposes are not considered available on an ongoing basis due to the variability of balances over time. Qualifying investment securities may include short-term Treasury notes, commercial paper, repurchase agreements, and guaranteed investment contracts with low volatility of mark-to-market. Revolving lines of credit and other forms of "soft capital" are typically not counted as short-term investments due to the fact that issuers are required to reimburse the provider for any draws made under the facilities.

### Swap Insurance

Swap insurance policies are similar to bond financial guarantees in that policies guarantee payments to a beneficiary, in this case a swap dealer, for failure to pay by the insured, in this case the issuer. Also similar to bond insurance, issuers are required to reimburse insurers for any payments made to beneficiaries under swap policies and must live with insurer legal restrictions. Under regular swap insurance policies, the insurer will make regularly scheduled swap interest payments if the issuer fails to do so. The majority of policies issued by insurers to date have been regular swap insurance policies, as they present immaterial, incremental risk to insurers, since in most cases the insurer is also insuring regularly scheduled payments on the issuer's bonds. Swap and bond payments are typically on parity with one another. In addition to regular swap payment insurance, some issuers have purchased swap termination coverage through a policy endorsement for an additional premium. Termination coverage tends to become expensive, as this coverage does present incremental risk for the insurer over scheduled payments on bonds and swaps. Swap termination insurance provides further, although not complete, protection against termination exposure due to issuer and insurer credit events (rating downgrades). Under swap termination policies, insurers will make swap termination payments, up to a specified amount, to the extent that a termination event under the swap is triggered and the issuer has failed to make the termination payment, or in lieu of termination, failed to post collateral or secure a third-party enhancer.

### Benefits

The benefits of swap insurance to an issuer are numerous, including significant, although not complete, mitigation of counterparty, collateral posting, and termination risks. Standard & Poor's DDP scores to date indicate that if not for regular swap insurance, many issuers--notably lower-rated health care issuers--would have been exposed to much greater levels of these risks. Of the approximate 210 issuers that have received a DDP score to date, about 15% have benefited from swap insurance through a lower overall DDP score as a result of scoring lower in the termination and collateral posting risk section of the DDP. The significance of swap insurance in the health care and transportation sectors is greater, with about 25% of issuers having benefited from insurance through lower DDP scores.

Regular swap insurance mitigates termination and collateral posting risk in several ways. In terms of collateral posting risk, the issuer is spared from having to post collateral under a credit support annex, due to the joint obligation of swap payments by both the issuer and the insurer. If the insurer has suffered significant ratings downgrades, collateral postings by the issuer are typically required, however. Furthermore, involuntary termination risk becomes more remote with regular swap insurance despite the fact that policies do not cover termination payments. This is because under insured swaps, the issuer's rating trigger for early termination becomes applicable only to the extent that the insurer has also suffered a significant ratings downgrade. The extremely low ratings volatility of 'AAA' rated monoline bond insurers combined with the overall stability of municipal ratings indicates that a termination event due to coincidental rating downgrades is an extremely remote possibility. In terms of counterparty risk mitigation, swap insurance can be beneficial to the issuer because insurers may require swap dealers to post collateral under credit support annexes, to the extent the counterparty suffers a credit event.

### Risks

The primary risk under swap insurance policies is the credit risk of the insurer. If the insurer's credit deteriorates significantly, the issuer is likely to have to post collateral in order to maintain the hedge; otherwise, the swap may be subject to termination. Some issuers will purchase swap termination policies to mitigate this risk. However, the monoline bond insurer industry has had an extraordinary history of credit stability and presents a very low probability of an issuer experiencing this risk. A secondary risk of swap insurance includes the oversight and legal restrictions imposed by insurers under swap policies. Because the insurer is assuming the issuer's credit risk for the duration of the swap transaction--often 20 years or more--insurers maintain certain control rights under the insured swap and insert various legal provisions into an issuer's bond documents. For example, so long as the insurer has not suffered a credit event, insurers reserve the right to allow voluntary termination of swaps and sometimes place limitations on additional swaps. These restrictions may become problematic if the issuer needs to restructure the swap or enter into additional swaps for economic reasons. Insurers also typically require that a series of credit protection provisions be inserted directly into the schedule to the International Swaps and Derivatives Association (ISDA) agreement, including collateralization by the counterparty. These protections are typically positive for the issuer's credit quality, although they may impact the economics of the transaction. Also, in some cases the insurer has the right to direct the issuer to terminate the swap early if the issuer has experienced an event of default (as defined under ISDA swap documents). Standard & Poor's is not overly concerned about insurer-directed termination clauses due to an event of default since these risks are already reflected in the issuer's rating.

Copyright © 2008, Standard & Poors, a division of The McGraw-Hill Companies, Inc. (S&P). S&P and/or its third party licensors have exclusive proprietary rights in the data or information provided herein. This data/information may only be used internally for business purposes and shall not be used for any unlawful or unauthorized purposes. Dissemination, distribution or reproduction of this data/information in any form is strictly prohibited except with the prior written permission of S&P. Because of the possibility of human or mechanical error by S&P, its affiliates or its third party licensors, S&P, its affiliates and its third party licensors do not guarantee the accuracy, adequacy, completeness or availability of any information and is not responsible for any errors or omissions or for the results obtained from the use of such information. S&P GIVES NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE. In no event shall S&P, its affiliates and its third party licensors be liable for any direct, indirect, special or consequential damages in connection with subscriber's or others' use of the data/information contained herein. Access to the data or information contained herein is subject to termination in the event any agreement with a third-party of information or software is terminated.

Analytic services provided by Standard & Poor's Ratings Services (Ratings Services) are the result of separate activities designed to preserve the independence and objectivity of ratings opinions. The credit ratings and observations contained herein are solely statements of opinion and not statements of fact or recommendations to purchase, hold, or sell any securities or make any other investment decisions. Accordingly, any user of the information contained herein should not rely on any credit rating or other opinion contained herein in making any investment decision. Ratings are based on information received by Ratings Services. Other divisions of Standard & Poor's may have information that is not available to Ratings Services. Standard & Poor's has established policies and procedures to maintain the confidentiality of non-public information received during the ratings process.

Ratings Services receives compensation for its ratings. Such compensation is normally paid either by the issuers of such securities or third parties participating in marketing the securities. While Standard & Poor's reserves the right to disseminate the rating, it receives no payment for doing so, except for subscriptions to its publications. Additional information about our ratings fees is available at [www.standardandpoors.com/usratingsfees](http://www.standardandpoors.com/usratingsfees).

Any Passwords/user IDs issued by S&P to users are single user-dedicated and may ONLY be used by the individual to whom they have been assigned. No sharing of passwords/user IDs and no simultaneous access via the same password/user ID is permitted. To reprint, translate, or use the data or information other than as provided herein, contact Client Services, 55 Water Street, New York, NY 10041; (1)212.438.9823 or by e-mail to: [research\\_request@standardandpoors.com](mailto:research_request@standardandpoors.com).

## Criteria Report

## Guidelines for Interest Rate Swaps and Variable-Rate Debt

### Analysts

#### Public Finance Credit Policy

David Litvack  
1 212 908-0593  
david.litvack@fitchratings.com

#### Tax-Supported

Amy Doppelt  
1 415 732-5612  
amy.doppelt@fitchratings.com

Amy Laskey  
1 212 908-0568  
amy.laskey@fitchratings.com

Richard Raphael  
1 212 908-0506  
richard.raaphael@fitchratings.com

#### Health Care

Fred Martucci  
1 212 908-0554  
fred.martucci@fitchratings.com

#### Higher Education

Pam Clayton  
1 212 908-0728  
pam.clayton@fitchratings.com

#### Revenue

Dan Champeau  
1 212 908-0829  
daniel.champeau@fitchratings.com

Cherian George  
1 212 908-0519  
cherian.george@fitchratings.com

#### Public Power

Karl Pfeil  
1 212 908-0516  
karl.pfeil@fitchratings.com

Hiran Cantu  
1 212 908-0371  
hiran.cantu@fitchratings.com

#### Municipal Structured Finance

Trudy Zibit  
1 212 908-0689  
trudy.zibit@fitchratings.com

### ■ Summary

The use of swaps and other interest rate derivative products by U.S. municipal issuers has proliferated over the last few years. Issuers that have used derivatives generally have achieved their initial intended objectives, benefiting from lower net borrowing costs and/or a more closely matched mix of assets and liabilities. However, the use of derivatives also involves risks, such as termination, counterparty credit, collateral posting, rollover, basis, variable interest rate, and tax risks, not present in "natural" long-term fixed-rate debt.

In assigning credit ratings to issuers with interest rate derivative exposure, Fitch Ratings considers the expected benefits derived, as well as risks taken, and factors them into the credit rating. If sound guidelines are implemented and followed, Fitch believes risks inherent to derivative products can be mostly mitigated. As a result, a properly structured swap that is appropriate to the entity involved generally would not have an impact on the issuer's credit rating.

The factors Fitch considers in determining an issuer's capacity for interest rate swaps and variable-rate exposure are the issuer's operating flexibility, its debt levels and access to additional capital, the likelihood of an issuer downgrade triggering a collateral call or termination payment, and the issuer's financial management capabilities, including staffing and access to financial market data. The presence of certain potential risk factors may warrant further review; these include higher than appropriate notional exposures, swaps that involve leverage formulas or up-front payments, counterparties with low credit quality, swaps with highly negative fair values, noncredit-related termination events, and issuers with limited abilities to manage swap risks.

Fitch also considers the objectives of the issuer in entering into the swap, the likelihood that those goals will be met, and whether the swap exposes the issuer to an imprudent level of market risk. Fitch may evaluate the swap under a probable worst case scenario in determining any potential effect on credit quality. Fitch is mindful of municipal issuers in the past that have suffered financial deterioration from "wrong way" bets on interest rate-sensitive investments.

To assess derivative risk, sufficient disclosure is essential. Fitch believes the Government Accounting Standard Board (GASB) technical bulletin 2003-1 has effectively established minimum disclosure requirements. Importantly, Fitch believes aggregated swap disclosure is not sufficient, particularly when there are offsetting swap arrangements with numerous counterparties, because of the potential for termination on only some of the transactions.

May 10, 2005

Fitch does not employ a standardized model or assign a separate indicator for derivative risk. Rather, benefits and risks associated with derivatives or variable interest rates are analyzed on a case-by-case basis and factored into the issuer's credit rating.

### ■ Background

Use of interest rate derivatives in conjunction with public finance debt issuance has increased greatly over the last few years. The most frequently used derivatives have been floating- to fixed-rate swaps. Issuers that would have otherwise issued natural long-term fixed-rate debt have been able to lower their net borrowing costs by issuing "synthetic" fixed-rate debt, i.e. variable-rate debt that has been swapped to fixed rate. Other types of derivatives commonly employed are fixed- to floating-rate swaps, forward starting swaps, swap options (swaptions), basis swaps, and caps, floors, and collars.

These various instruments and other commonly used swap terms are briefly described in the Appendix on page 8. More detailed information is available from a number of sources, including International Swaps and Derivatives Association Inc. (ISDA), the global trade association representing participants in the privately negotiated derivatives industry. Also in the Appendix (pages 8-9) are case studies explaining how Fitch has analyzed the use or proposed use of swaps on specific municipal transactions.

### ■ Benefits

#### Lower Borrowing Costs

Swaps have been effectively used to lower municipal issuers' net borrowing costs under expected market conditions. Recently, issuers been able to lower their cost of capital by issuing variable-rate bonds and swapping them to fixed rate. The overall transaction results in a net borrowing cost that is lower than if the issuer issued natural fixed-rate debt, while the swap mitigates but does not eliminate the risk of rising interest rates. If interest rates were to rise significantly from current levels, Fitch would expect to see an increase in fixed- to floating-rate swaps.

Lower net borrowing costs can also be achieved through a basis swap. In such a transaction, an issuer enters into an arrangement to pay a floating rate based on the Bond Market Association index (BMA) and receive a somewhat higher payment based on a percentage of the London Interbank Offered Rate (LIBOR). If the relationship between BMA and

LIBOR remains about the same, the issuer enjoys a net positive cash flow from the swap, which can offset some of its interest expense. However, the benefits of such an arrangement are vulnerable to factors outside the issuer's control that may affect the relationship between tax-exempt and taxable rates, such as changes in the tax law (*see Risks section below*). These can reduce the savings generated by the swap or make the cash flow negative.

#### Hedge Interest Rate Risk

Swaps can be appropriately used to hedge exposure to interest rate risk and better match assets and liabilities. Issuers such as utilities or hospitals, whose liquidity needs require them to maintain significant amounts of short-term investments, can hedge exposure to decreases in investment income due to lower interest rates by swapping fixed-rate debt to floating. Then, if income on their short-term investments decreases, costs related to their debt will likely show a corresponding decline.

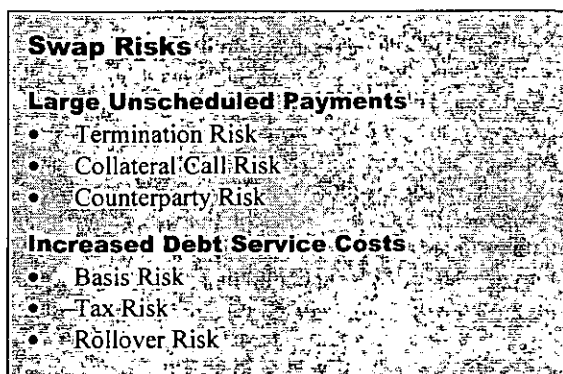
#### Up-Front Payments

An issuer may receive an up-front payment from a counterparty by selling a swaption, which is an option (but not an obligation) purchased by a counterparty to enter into a swap with the municipality at agreed upon terms at some point in the future, typically the first call date on the issuer's existing debt. The up-front cash receipt is offset by a loss in financial flexibility, because if the counterparty exercises its option, the issuer must refund its existing debt at the terms agreed to, even if they are no longer optimal. This risk is similar to the risk an issuer takes on an advance refunding, in that if interest rates decline, the yield on the advance refunding bond may be higher than what would have been available had the issuer waited for the refunded bond's first call date.

Fitch views up-front payments from derivatives as one-time in nature, and only a benefit if used for one-time expenditures. If the payment is used to cover a budget gap caused by recurring costs, Fitch views this as a sign of fiscal strain and, if done to a meaningful degree, evidence of imprudent fiscal management and weakness in overall credit quality.

### ■ Risks

The benefits from entering into swaps may be offset by certain risks that are introduced or exacerbated. Of these, Fitch believes termination, counterparty, and collateral call risks present the greatest potential challenges to issuers, because of the potential for



large, unbudgeted payment requirements. By contrast, basis risk, when it has been realized, has been manageable, in part because interest rates have been relatively low over the last few years. However, basis risk could become more significant based on market factors, e.g. if interest rates increase significantly and/or if there is a change in marginal tax rates or the tax-exempt status of municipal bonds. The longer the scheduled life of the swap, the greater the probability for realizing one or more swap-related risks.

#### Termination Risk

The risk that a swap may be terminated before the corresponding debt matures presents a number of potential problems. Swap agreements generally allow either party to terminate the swap if the other party is downgraded below a certain rating level. If this occurs and there has been a shift in interest rates, the party that has a negative mark-to-market position ("out of the money") will owe money to the party that has a positive mark-to-market position ("in the money"). The amount owed is due regardless of which party initiated (or caused) the termination. If it is the issuer that is out of the money, it may be required to make a large payment to the counterparty.

In analyzing the potential credit impact of termination risk, Fitch will consider the issuer's potential payment liability under a variety of interest rate scenarios to determine if it may cause an immediate liquidity problem for the issuer. If the issuer is in the money, it will receive a termination payment from the counterparty, assuming the counterparty is able to perform under its obligation (see *Counterparty Credit Risk at right*). In this case though, it will lose the benefits provided by the swap. If market conditions have changed or the issuer's credit has weakened, it may not be able to enter into another swap or refund its existing debt at terms as advantageous as the original arrangement.

From an issuer's perspective, swap termination may be voluntary (e.g. to mitigate interest rate risk or reduce exposure to a downgraded counterparty) or involuntary (e.g. if the issuer is downgraded below the trigger point established in the swap documents). Fitch views favorably swaps that provide for the issuer (but not the counterparty) to voluntarily terminate the swap, since the issuer can better control its swap-related risks.

#### Counterparty Credit Risk

Like any arrangement with an outside party, swaps incorporate the risk of nonperformance by that entity. Since the counterparties on municipal swaps generally are large creditworthy commercial banks, investment banks, or insurance companies, which hedge their own risks by entering into offsetting swaps and trades with other counterparties, the risk of regular swap payment default is minimal under normal conditions. However, if a counterparty's credit deteriorates very rapidly, it may default on its swap payment obligation and its termination payment before it has fully posted collateral or its collateral posting has been "preference proofed" for purposes of bankruptcy. In the worst case scenario, a municipal issuer that is in the money may see its swap terminate and, therefore, its net borrowing costs increase without being able to collect the termination payment it is owed by a defaulting counterparty. This could have rating implications if the uncollectible termination payment is material to the issuer's financial situation.

Examples of large financial institutions that have failed quickly include Executive Life Insurance Co. in 1991 (resulting in numerous municipal bond defaults for which Executive Life had provided guaranteed investment contracts on the bond proceeds) and Drexel Burnham Lambert in 1990. Long-Term Capital Management, a large hedge fund with extensive derivative positions, nearly failed in 1998 but was restructured by several large financial institutions. (Fitch is not aware of any municipal swap transactions to which Long-Term Capital Management was a direct counterparty).

To mitigate counterparty credit risk, Fitch strongly prefers swap counterparties with long-term ratings no lower than 'A' and short-term ratings no lower than 'F1'. Where swap exposure is large relative to overall debt, Fitch prefers a diversified group of highly rated counterparties.

#### Collateral Posting Risk

To mitigate the risk that a party to the swap may not be able to honor its obligation in the event of a

termination, the out of the money party may be required to post collateral. The point at which a party needs to post the collateral generally depends on its credit rating, e.g. an 'A' entity may need to post collateral once its potential termination payment exceeds \$10 million, whereas a 'BBB' rated entity may need to post once its potential termination payment exceeds \$1 million. Note that a collateral call precipitated by a downgrade may accelerate the weakening of that party's financial condition and increase the chance of a termination event.

Collateral calls for issuers introduce the risk that the issuer will be required to make a payment if their swaps become significantly out of the money. However, Fitch believes gradual step-ups in collateral requirements by issuers may be a good credit discipline, because they may prevent situations in which the need to make a large termination payment imposes a difficult liquidity demand. Issuers that accept collateral posting requirements should consider and specify at the outset of a swap transactions from where they will draw funds if required to post collateral. Fitch views as prudent an issuer establishing reserves for this purpose.

#### **Basis Risk**

Basis risk covers the possibility that an issuer's actual debt service payment will differ from the payment it receives from the swap counterparty. Basis risk may be realized from differences that develop in the issuer's borrowing rate versus the rate on BMA because of an issuer downgrade or shifts between BMA and LIBOR due to changes in market conditions or U.S. marginal tax rates. While swaps based on BMA entail less basis risk, issuers can generally achieve a lower net borrowing cost by entering into swaps based on a percentage of LIBOR.

Unfortunately, any LIBOR-based swap can only use historical spread relationships as the basis for setting the reference point. Because BMA historically has traded at about 67%–70% of LIBOR, this has commonly been used as the reference for most LIBOR-based swaps. However, the general reduction in interest rates over the last several years has caused a compression in the BMA/LIBOR spread and resulted in many issuers realizing basis risk on floating- to fixed-rate LIBOR-based swaps. Basis risk on floating- to fixed-rate LIBOR based swaps may also be realized in a steadily rising interest rate environment, where the daily BMA rate can exceed the adjusted LIBOR on average over the life of the swap due to differences in reset timing.

Basis risk that has been realized to date has not had a significantly adverse effect on the credit of most municipal issuers, since interest rates have been relatively low. Furthermore, it is important to note that an issuer that experiences minor basis risk on a floating- to fixed-rate swap may still be paying a lower overall cost on its debt than if it had issued natural fixed-rate debt. However, issuers with only limited flexibility to handle increased debt service may prudently choose to minimize exposure to basis risk by using only BMA-based swaps. Issuers with virtually no flexibility should avoid derivative use and variable-rate debt altogether.

#### **Tax Risk**

A greater convergence of the BMA rate and LIBOR may occur if there is a reduction in marginal tax rates or, more significantly, if municipal bonds lose their tax exemption, as might occur with a "flat tax." Note that on basis swaps, a municipal issuer effectively sells protection against tax reform to a counterparty with BMA exposure (and assumes the tax risk itself), because if marginal tax rates are reduced (or a flat tax is imposed), the spread between BMA and LIBOR will tighten and the issuer's BMA-based swap payment may exceed the counterparty's LIBOR-based swap payment. Of course, it is important to note that municipal issuers also incur tax risk on natural (unhedged) variable-rate debt, since if marginal tax rates go down or a flat tax is implemented, tax-exempt yields will increase.

#### **Rollover Risk**

Rollover risk occurs when a swap's scheduled maturity is shorter than that of the corresponding debt; in such case, an issuer may not be able to enter into a new swap at terms as favorable as the first one.

### **■ Credit Guidelines**

#### **Appropriate Usage of Interest Rate Swaps and Variable-Rate Debt**

The amount of interest derivative exposure and variable-rate debt appropriate for a municipal issuer depends on several factors: the issuer's operating flexibility; its access to both short- and long-term capital; the likelihood of an issuer downgrade triggering a collateral call or termination payment; and the issuer's financial expertise. Fitch weighs these four factors individually, based on the specific credit characteristics of the issuer and its borrowing needs. A municipal issuer's characteristics in any of the four categories may be such that Fitch would

**Credit Guidelines****Considerations for Appropriateness of Swaps and Variable-Rate Debt**

- Operating flexibility (liquid reserves, operating margins, and revenue-raising/rate-setting ability)
- Capital access (leverage, debt capacity)
- Risk of an issuer downgrade triggering a collateral call or termination payment
- Financial management capabilities (formal swap policy, conservative standards, documented swap objectives, ability to monitor swap positions, and manage swap-related risks)

**Sizing Swap and Variable-Rate Capacity**

- Depends on issuer's risk profile, usually sector dependent, as well as terms of the swap and variable-rate debt

**Disclosure Conforming to GASB 2003-1**

GASB – Government Accounting Standards Board.

consider its use of variable-rate debt or swaps as inappropriate, even if it was judged well according to the other three measures.

Some issuers with capacity to undertake variable-rate or derivative risk may choose not to do so, because they have determined that the benefits do not sufficiently outweigh the risks in their particular case. Such a conservative stance is not viewed negatively by Fitch.

**Operating Flexibility:** Issuers with strong liquid reserves, solid operating margins, and significant revenue-raising or rate-setting flexibility can generally sustain some degree of interest rate volatility and still maintain balanced operations. In fact, where reserves are invested short term, variable-rate debt can hedge against reductions in investment income from lower interest rates. In assessing operating flexibility, Fitch considers the stability of fund balances and operating margins, as well as the practical ability of the issuer to increase taxes or rates. Special reserves or other liquid funds that can be used to make collateral calls or termination payments further enhance operating flexibility.

**Capital Access:** If an issuer has low or moderate debt levels and strong capital access, Fitch believes it can refund existing debt and/or voluntarily terminate unfavorable swap arrangements to eliminate or reduce its risk to increased interest rates, collateral calls, termination payments, and counterparty credit risk. Fitch believes it is essential that issuers monitor their swap and interest rate exposure closely to take advantage of opportunities or reduce risks that are growing too large.

**Potential for Collateral Call or Termination Payment:** If an issuer is downgraded below a preset trigger (e.g. 'BBB-'), its swap counterparty may terminate the swap or require the issuer to post collateral or increase the amount of collateral already set aside. Given that this may come in an interest rate

environment that requires sizable payments by the issuer, Fitch is concerned if an issuer enters into a swap when it is rated lower than 'A-' or three or fewer notches above the termination trigger level.

**Financial Management Capabilities:** A formal and conservative policy related to derivatives and interest rate risk that is appropriate to the specific entity is viewed by Fitch as a strong management practice. Such policies provide evidence that an issuer has evaluated both the benefits and risks of derivative products and variable-rate instruments, will be disciplined and avoid swap transactions that would be considered speculative, and will be able to manage the related risks into the future. Ideally, the swap and variable interest rate guidelines are part of overall policies governing the matching of assets and liabilities to reduce interest rate risk. Among the items Fitch looks for in swap guidelines are limitations on notional amount and types of swaps allowed, restrictions on the use of leverage and one-time payments received in connection with a derivative product, credit quality requirements of counterparties, consideration of potential mark-to-market exposures under probable worst case interest rate scenarios, and sources of funds for potential collateral calls or termination payments. Fitch views negatively an issuer that liberalizes its guidelines or violates them.

Fitch views positively an issuer that has fully documented the objectives for its swap positions. Issuers should have sufficient access to financial market information to monitor its transactions and measure achievement to objectives. Issuers should be willing to re-evaluate strategies when interest rates and other conditions change and take timely actions to fix a situation where the objectives are no longer being met.

**Appropriate Sizing of Interest Derivative and Variable-Rate Exposure**

Fitch reviews an issuer's total debt portfolio, including debt levels, in assessing overall exposure to



variable-rate and derivative risk. While guidelines vary based on the borrower's credit profile, most state and local government issuers that are assessed highly in the above four factors should be able to allocate some portion of their total debt as variable rate and derivatives without incurring a negative effect on credit quality. Fitch determines variable-rate and derivative capacity on a case-by-case basis, considering the risk characteristics of the borrower, as well as the terms of the swaps and variable-rate debt. Fitch not only considers notional swap exposure but also leveraged formulas embedded within swap terms that may increase volatility.

Certain revenue bond issuers, like highly rated colleges and universities, utilities, and health care institutions with large amounts of liquid investments, may have higher percentages of variable-rate and swap exposure without affecting credit quality. In fact, institutions with endowments and investments in liquid securities sized well above their debt should be able to allocate 100% of their debt as variable rate without negatively affecting their credit ratings, since the variable-rate debt hedges such issuers from interest rate risk on their investments.

By contrast, an analysis of the above four factors would identify some issuers that should have little or no derivative or variable-rate exposure. Certain types of issuers by their nature have very limited operating flexibility and, therefore, little tolerance for interest rate risk (e.g. startup toll roads with a high degree of ramp-up risk). An issuer's capacity for variable interest rate and swap exposure tends to be sector specific. Therefore, Fitch will develop and publish additional guidelines for specific sectors such as transportation, higher education, health care, and public power.

#### Potential Risk Factors

Fitch believes the following potential risk factors may warrant additional review to determine if credit quality is adversely affected.

**Speculative Behavior:** Fitch considers the objectives of the issuer in entering into the swap, the likelihood that those objectives will be met, and whether the swap exposes the issuer to an imprudent level of market risk. Fitch has strong concerns with an issuer that enters into a swap arrangement as a means of "playing the market" or seeking to make money from expected interest rate movements. If Fitch concludes there is a strong chance that the objectives of the swap will not be met, Fitch may evaluate it according to a probable worst case scenario in determining any

#### Potential Risk Factors That May Warrant Additional Review

- Speculative Behavior
- Up-Front Payments and Leveraged Formulas
- Low Counterparty Credit Quality
- Large Negative Fair Value
- Noncredit-Related Termination Events
- Limited Management Capabilities
- Lack of Financial Flexibility
- Termination Payment on Parity with Debt Service

potential effect on credit quality. While Orange County, CA was not involved in interest rate swaps per se, its bankruptcy in 1994 was caused by a wrong way bet on a leveraged portfolio of interest rate-sensitive derivative securities.

**Up-Front Payments:** Fitch views skeptically issuers entering into swaptions or other arrangements done solely to receive an up-front payment. However, Fitch understands that an issuer may have very good reasons to enter into a swaption. A common example of a prudent swaption is one done to realize an up-front savings from a future refunding. Even in such a case though, the up-front cash receipt is offset by a loss in financial flexibility; if the counterparty exercises its option, the issuer must refund its existing debt and enter into a swap at the terms agreed to, even if they are no longer optimal. As noted in Up-Front Payments on page 2, this risk is similar to that taken on an advance refunding.

Fitch would view negatively a swaption done primarily to receive revenue needed to fund ongoing operations. This view is consistent with Fitch's overall view that one-time receipts should be used for one-time expenditures.

**Low Counterparty Credit Quality:** Fitch strongly prefers swap counterparties with long-term ratings no lower than 'A' and short-term ratings no lower than 'F1'. For issuers that make extensive use of swaps, Fitch prefers a diversified group of highly rated counterparties to minimize risk to any one provider.

**Large Negative Fair Value:** Further review of derivative risk may be triggered when large negative fair values are reported, especially in combination with an increase in termination, counterparty, or collateral call risk. If such conditions arise, Fitch will

seek information from the issuer as to its ability to fund a potentially large, unscheduled payment.

**Noncredit-Related Termination Events:** Fitch is concerned with swap arrangements where termination can be triggered by “cross defaults” that are not truly related to credit quality. These events may include a dispute with a vendor and certain legal judgments. Situations such as these can arise suddenly and expose the issuer to swap termination and all its associated potential problems.

**Limited Management Capabilities:** Fitch is concerned if management has not clearly stated its objectives in entering into the swap or has not carefully considered the risks entailed. Even if management has evaluated the risks involved fully, these risks still may be inappropriate given the issuer’s credit profile.

**Lack of Financial Flexibility:** Fitch views negatively projects that are feasible only through the reduced costs generated through derivatives or variable-rate debt, since if the swap is unwound early or interest rates rise, the issuer may not be able to meet its covenants.

**Priority of Payments:** If an issuer’s termination payment is of the same priority as its debt service, an inability to make a termination payment could cause a cross default on its debt. In these situations, Fitch considers risk mitigators such as liquid investments, reserves, and gradual step-ups in collateral. If an issuer’s termination payment is guaranteed by a financial guarantor, the issuer may avoid a cross default on its bonds if it cannot make a termination payment. However, this provides only limited comfort from a credit rating perspective, since the guarantor would have recourse to the issuer for repayment.

#### ■ Disclosure

Disclosure is very important for issuers that enter into swaps. Fitch believes GASB technical bulletin 2003-1 has effectively established minimum disclosure

requirements. Importantly, Fitch regards aggregated swap disclosure as insufficient, particularly when there are offsetting swap arrangements with numerous counterparties because of the potential for termination on only some of the transactions. The items GASB 2003-1 recommends disclosing are:

- Objective of the derivative.
- Significant terms.
  - Notional amount.
  - Underlying indexes or interest rates.
  - Terms such as caps, floors, or collars.
- Options embedded in the derivatives.
- Effective date and scheduled maturity date.
- Any cash paid or received when the derivative was initiated.
- Fair value at a specific reporting date.
- Associated debt.
- Discussion of risks.
  - Credit risk factors (credit ratings of counterparties, maximum amount of loss due to credit risk [without respect to collateral or other security], description of any collateral, netting arrangements, and counterparty diversification).
  - Interest rate risk.
  - Basis risk.
  - Termination risk (including any unusual termination events).
  - Rollover risk (if the term of the swap is shorter than the associated debt).
  - Market access risk (if the entity plans to issue debt to complete the derivative’s object, as would be the case with a swaption).

To the extent any of the above information raises concerns (e.g. low counterparty rating, highly negative fair value, or swaptions), Fitch may seek additional information. Fitch also expects to be notified whenever issuers make significant changes to their derivative profile, so their outstanding credit ratings can be reviewed in the context of any potential changes in derivative-based risks.

## ■ Appendix

### Glossary

The following definitions pertain to terms associated with swaps commonly entered into by municipal organizations.

**Basis Risk:** The risk that an issuer's actual debt service payment will differ from the payment it receives from the swap counterparty. A municipal issuer's tax-exempt variable-rate debt more closely tracks BMA than LIBOR. Therefore, if an issuer enters into a floating- to fixed-rate LIBOR-based swap (i.e. pay fixed, receive a percentage of LIBOR) and the spread between BMA and LIBOR tightens (i.e. BMA as a percentage of LIBOR increases), the funds received from the counterparty may not fully cover the municipal issuer's variable-rate debt service, and its savings from entering into the swap will be reduced.

**Cost of Fund Swaps:** Cost of fund swaps offer stronger protection against basis risk than index-based swaps. However, counterparties cannot easily hedge their risks, so the terms are not usually as favorable to the municipal issuer. Furthermore, basis risk protection is still incomplete, because if the issuer is downgraded below a specified level, the swap reference generally converts to an index basis. For these reasons, cost-of-fund swaps are unusual in the municipal market.

**Floating- to Fixed-Rate Swaps:** A municipality arranges with a counterparty to pay a fixed rate and receive a floating rate, thereby converting the issuer's variable-rate debt into synthetic fixed-rate debt.

**Fixed- to Floating-Rate Swaps:** A municipality arranges with a counterparty to pay a floating rate and receive a fixed rate, thereby converting the issuer's fixed-rate debt into synthetic variable-rate debt.

**Forward Starting Swaps:** Such swaps are often used to approximate the benefits of an advance refunding when one is not otherwise permitted under tax laws. Forward starting swaps are agreements to begin the payment exchange at some designated point in the future (e.g. the first call date on existing debt) at rates determined when the agreement is made based on a forward yield curve.

**Swaptions:** These are similar to forward starting swaps, except that the counterparty makes an up-front payment to the issuer for the right but not the obligation to enter into a swap at a designated point in the future at rates agreed to when the swaption is made.

**Basis Swaps:** Basis swaps exchange interest rates based on one index for another; they are typically set up so that a municipality pays a floating rate based on the BMA index (an index of short-term, tax-exempt securities) and receives a floating rate based on a percentage of LIBOR. The industry has used a standard of 67%-70% of LIBOR to match BMA, based on the historical correlation with marginal tax rates.

**Caps, Floors, and Collars:** Caps are arrangements where the counterparty, in consideration of a premium paid by the issuer, agrees to make payments to the issuer to the extent that the referenced interest rate exceeds a given rate, thereby hedging the issuer's risk to rising interest rates. Floors are the opposite of caps; the counterparty pays the issuer a premium, and the issuer agrees to make payments to the counterparty to the extent that the referenced interest rate drops below the specified rate. Collars are caps and floors used in combination to maintain the issuer's effective interest rate within a given range; the terms can be structured so the premiums paid by the issuer for the cap and by the counterparty for the floor offset each other, resulting in no net premium payment.

### Case Studies

**Municipal Electric Authority of Georgia (MEAG Power):** MEAG POWER is a joint action agency wholesale power supplier whose senior and subordinate lien debt are rated 'A+' by Fitch. In January 2005, MEAG Power issued \$148 million of auction-rate subordinate bonds, which it swapped to fixed over the debt's 35-year life. Prior to the transaction, MEAG Power had \$4 billion in total outstanding debt, including \$1.3 billion of variable-rate debt, of which \$900 million was swapped to fixed (net variable-rate par outstanding equaled \$400 million).

In considering the risks related to variable interest rates and swaps, Fitch noted that the new debt would be swapped to BMA, which minimizes tax risk. All of MEAG Power's swap counterparties were rated 'AA' or higher, and this was formalized in its asset liability policy. MEAG Power had insurance for swap termination payments in excess of \$50 million it could potentially be required to make. Swap payments are on parity, and termination payments are junior to subordinate lien debt. MEAG Power is a self-regulating entity, serving a state that has not deregulated its electric industry. MEAG Power had

considerable reserves, totaling \$800 million. As a result, Fitch determined MEAG Power's variable-rate and swap exposure should not have an adverse effect on its credit rating.

**Transportation Corridor Agencies:** Early last year, the Transportation Corridor Agencies, a public entity based in Orange County, CA that operates two start-up toll roads, San Joaquin Hills and Foothill/Eastern, proposed a \$4.0 billion acquisition financing that was never consummated. Two options were presented, one of which included a synthetic fixed-rate component with a \$1.0 billion insured LIBOR-based floating-to fixed-rate swap and one that provided for an all fixed-rate debt issuance. The synthetic fixed-rate option provided for significantly lower projected interest costs, creating the potential for greater

surplus cash flow to fund a system expansion project. It incorporated the issuance of approximately 25% of the debt in a variable-rate mode.

Derivative-based debt structures may cause significant stress for highly leveraged revenue bond issuers with limited economic and financial flexibility. While the swap was insured and termination payments limited and subordinated, the unwinding of a swap cannot be ruled out. In Fitch's opinion, the entity's very limited ability to make a termination payment, questionable market access for replacement of the swaps or conversion to natural fixed-rate debt, and the inability to support a high degree of interest rate risk are characteristics inconsistent with an investment-grade rating.

Copyright © 2005 by Fitch, Inc., Fitch Ratings Ltd. and its subsidiaries. One State Street Plaza, NY, NY 10004.

Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. All of the information contained herein is based on information obtained from issuers, other obligors, underwriters, and other sources which Fitch believes to be reliable. Fitch does not audit or verify the truth or accuracy of any such information. As a result, the information in this report is provided "as is" without any representation or warranty of any kind. A Fitch rating is an opinion as to the creditworthiness of a security. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed, suspended, or withdrawn at anytime for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from USD1,000 to USD750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from USD10,000 to USD1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of Great Britain, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.



## ISSUE BRIEF

California Debt and Investment Advisory Commission

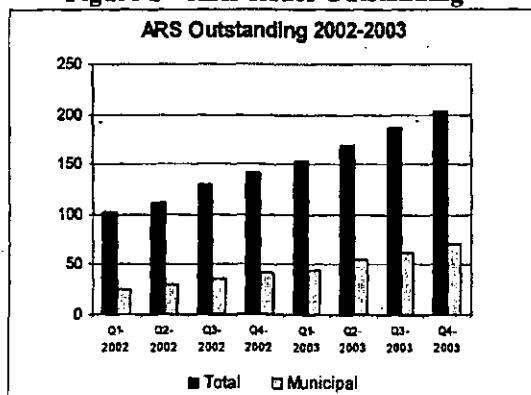
August 2004

# AUCTION RATE SECURITIES

Douglas Skarr  
CDIAC Policy Research Unit

The Auction Rate Securities market has expanded significantly in the public finance sector since 2001. Nationwide, issuance of auction rate securities, including the public finance area, grew from \$100 billion in the first quarter of 2002 to \$200 billion by the end of the fourth quarter of 2003. Public finance has become the fastest-growing sector to use auction rate securities, with total issuance projected to grow at double-digit rates in the future (see Figure 1).

Figure 1 – ARS Issues Outstanding



The use of auction rate financing is becoming more attractive for many reasons, especially in comparison to variable rate demand obligations (VRDO). Auction Rate Securities have no "put" or tender feature, no letter-of-credit requirement, and no need for an annual short term bond rating, all of which increase the cost of issuance and maintenance of VRDO. However, these securities may not be appropriate for all municipal issuers. Municipalities planning to issue Auction Rate

Securities must carefully evaluate the current environment, their objectives, and consider how this debt will be managed over the long term.

This *Issue Brief* provides an overview of the market, mechanics, costs, benefits and risks associated with Auction Rate Securities.

## I. DEFINITION AND PURPOSE

Auction Rate Securities (ARS) are long term, variable rate bonds tied to short term interest rates. ARS have a long term nominal maturity with interest rates reset through a modified Dutch auction, at predetermined short term intervals, usually 7, 28, or 35 days. They trade at par and are callable at par on any interest payment date at the option of the issuer. Interest is paid at the current period based on the interest rate determined in the prior auction period.

Although ARS are issued and rated as long term bonds (20 to 30 years), they are priced and traded as short term instruments because of the liquidity provided through the interest rate reset mechanism. Frequent issuers of municipal ARS include traditional issuers of tax-exempt debt such as municipalities, non-profit hospitals, utilities, housing finance agencies, student loan finance authorities and universities. Municipal ARS issues are typically of high credit quality. Historically, over 75 percent of the issues sold have received the highest credit rating available from the major credit agencies, generally because of bond insurance.

ARS investors are typically high net worth individuals (for tax-exempt issues) or corporations (for taxable issues). Money market funds are ineligible to hold ARS due to Securities and Exchange Commission Rule 2a-7, restricting them to securities with a final maturity of 397 days or less.

ARS trade at par value and typically include a "multi-modal" conversion feature that allows for conversion to long term fixed or variable rate bonds. The usual minimum issue size is \$25 million, in denominations of \$25,000.

In addition to the typical bond issue participants, ARS require a broker/dealer (either a single underwriter or syndicate of multiple broker/dealers) to structure the issue, underwrite, distribute, and provide and increase liquidity to ARS investors. ARS also require an "auction agent" to receive bids from the broker/dealers, determine the winning bid and reset rate, and act as liaison between the issuer, brokers, trustees, and security depositors.

ARS carry the typical up front fees associated with a traditional fixed rate bond issuance along with ongoing annual fees; industry standard is \$5/bond for initial placement fee plus annual fees of 25 basis points for broker/dealer fees and 1-2 basis point(s) for auction agent fees. Because ARS have no letter of credit requirement, letter of credit fees are eliminated, but additional costs of bond insurance may be necessary.

Credit risk associated with ARS mirror those of other municipal and corporate issues in terms of default risk associated with the issuer. Because ARS do not carry a "put" feature (which allows the bondholder to require the purchase of the bonds by the issuer or by a specified third party), they are very sensitive to changes in credit ratings and normally require the highest ratings

(e.g. AAA/Aaa) to make them marketable. This is usually achieved with bond insurance.

## II. DUTCH AUCTION MECHANICS

The interest rate on ARS is determined through a Dutch auction process. The total number of shares available to auction at any given period is determined by the number of existing bond holders who wish to sell or hold bonds only at a minimum yield.

Existing holders and potential investors enter a competitive bidding process through broker/dealer(s). Buyers specify the number of shares, in denominations of \$25,000, they wish to purchase with the lowest interest rate they are willing to accept.

Each bid and order size is ranked from lowest to highest minimum bid rate. The lowest bid rate at which all the shares can be sold at par establishes the interest rate, otherwise known as the "clearing rate". This rate is paid on the entire issue for the upcoming period. Investors who bid a minimum rate above the clearing rate receive no bonds, while those whose minimum bid rates were at or below the clearing rate receive the clearing rate for the next period.

Holders of existing ARS have the option to:

- Hold at Market: hold an existing position regardless of the new interest rate (these shares are not included in auction).
- Hold at Rate: bid to hold an existing position at a specified minimum rate.
- Sell: request to sell an existing position regardless of the interest rate set at the auction.

Potential buyers have the option to:

- Buy: submit a bid to buy a new position at a specified minimum interest rate (new buyers or existing holders adding to their position at a specified interest rate).

Figure 2 - Example of Sales Process

\$25,000,000 ARS Issue OUTSTANDING 1,000 SHARES @ \$25,000 EACH AVAILABLE 500 SHARES (INCLUDES ALL SELL AND HOLD AT RATE ORDERS)				
Bidder	Order Placed Shares	Bid Type	Bid Minimum Rate	Orders Filled @ 1.00% (clearing rate)
1	100	Buy	Any	100
2	200	Hold at Rate	.90%	200
3	100	Hold at Rate	.95%	100
4	200	Buy	1.00%	100 (Partial)
5	100	Sell	Any	Shares are Sold
6	100	Hold at Rate	1.03%	Shares are Sold
7	300	Buy	1.03%	Not Filled
8	200	Buy	1.10%	Not Filled

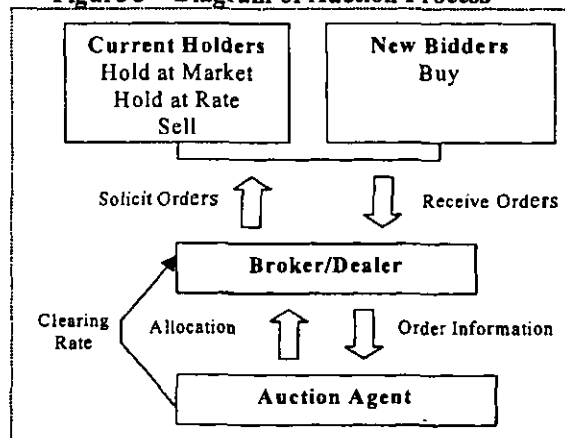
Figure 2 illustrates how the "clearing rate" is determined for an ARS offering of 500 shares, made up of (1) orders to sell and (2) orders to hold at rate. In this example, orders for 1,300 shares of different bid types were placed. The clearing bid is 1.00 percent because it provided the last share purchase to clear the auction total of 500 shares.

The entire orders for bidders 1, 2, and 3, totaling 400 shares, were filled at the clearing rate of 1.00 percent. Bidder 4's 200-share order was partially filled for 100 shares because a maximum of 500 shares available at this auction was reached. The orders for Bidders 5 and 6 were sold. Bidders 7 and 8 had buy orders that were not filled.

### III. ARS AUCTION PROCESS

Figure 3 provides a diagram of the auction process.

Figure 3 - Diagram of Auction Process



- Investors specify the par amount of securities they want and what they are willing to pay.
- The broker/dealer(s) conveys the bids to the auction agent.
- The auction agent, who is a third-party bank selected by the issuer, collects all the bids from all participating broker/dealer(s) on behalf of the investors.
- The auction agent assembles all the bids in ascending rate order and determines the clearing rate.
- The bids at or lower than the clearing rate will receive the bonds. In the event of multiple bids at the clearing rate, the auction agent will allocate securities on a pro-rata basis. Existing holders receive preference over new bidders at the same rate.
- After selection, the auction agent notifies the broker/dealer(s) of the auction results.
- The broker/dealer(s) record and settle the trades for next business day settlement.

A "failed auction" can occur due to a *lack of demand* and no clearing bid received. In the event of a failed auction, existing holders will hold their positions at the maximum rate set in the official statement until sufficient bids are entered to set a clearing bid at the next auction. Although the underwriting broker/dealers are not required to do so, they can provide a

"clearing bid" to ensure the success of each auction and provide liquidity to investors who wish to sell. Failed auctions are very rare and are associated with downgrades in credit quality of either the issuer or insurer of the issue.

For auction periods with a *lack of supply*, where all existing holders wish to continue to hold, an "all hold" rate is paid for the next period. This rate is established in the official statement and is generally tied to the Bond Market Association Index (BMA) rates or commercial paper rates.

Interest is paid by a trustee or paying agent. Interest payments to holders in the current month will be based on the interest rate determined in the prior month's auction period. This lag time is necessary to provide time for clearing and administration of the payments.

#### IV. ARS COMPARED TO VARIABLE RATE DEMAND OBLIGATIONS

ARS are an alternative to variable rate demand obligation (VRDO) bonds. A VRDO is a security for which the interest rate is reset periodically, typically through a remarketing process, or according to a specified index. The bond's demand feature permits the bondholder to require the purchase of the bonds by the issuer or by a specified third party, either periodically, at a certain time prior to maturity, or upon the occurrence of specified events or conditions. This process is often referred to as "putting" a bond or exercising a "tender option". Interest rates are generally based on market conditions and the length of time until the bondholder can exercise the put option. Because of the put feature, the VRDO normally requires a bank letter of credit.

Whereas a VRDO would generally require a letter of credit, ARS do not because the

investor does not possess a put option but rather relies on the liquidity generated by the Dutch auction process and the credit-worthiness of the issuer or insurer. Although no letter of credit is required, most issues carry bond insurance to elevate them to the highest credit rating. The following table describes typical differences in features between ARS and VRDO bonds.

Figure 4 – Feature Comparison: ARS versus VRDO

	VRDO	ARS
Denominations	\$100,000	\$25,000 (Tax-Exempt) \$50,000 (Taxable)
Interest Rate Period	Daily, weekly, monthly, etc.	7 day (Non-AMT), 28 day (Taxable), 35 day (AMT)
Interest Payment Frequency	Monthly or Semi-Annually	Business day following the auction
Change of Interest Rate Period	Yes	Yes
Insurance	Must at least have a liquidity facility	Typically Insured
Credit Enhancement	AA/Aa or better plus liquidity	AAA/Aaa
Redemption	Yes	Broker/dealer
Tender Put	Yes	No (subject to mandatory purchase on conversion date to another mode)
Redemption Provisions	Callable on any interest payment date at par value	Callable on any interest payment date at par value
Typical Investors	Mainly money market funds, corporate investors, high net worth investors	Corporate and high net worth investors, bond funds, and bank trust departments to a lesser extent



The interest rate on ARS is usually slightly higher than that of VRDO, which would generally result in a higher cost of funds for the borrower. In addition, the upfront fee (e.g. initial placement fee) associated with ARS is generally higher than that of VRDO. However, the cost of obtaining a letter of credit in an issuance of VRDO, along with risks associated with the elimination and/or renewals of the letter of credit, can make the cost of funds for an issuance of VRDO on par or even more expensive than that of an issuance of ARS.

All costs associated with the issuance (e.g., bond insurance, broker and auction fees) should be considered in the decision to issue ARS (see Figure 5).

**Figure 5 - Cost Comparison: ARS versus VRDO**

	ARS	VRDO
	+BMA Index	+BMA Index
Interest rate	N/A	+65 Bp**
Bond insurance	+7 Bp	N/A
Cost of issuance	+5 Bp	+3 Bp
Letter of credit	+25 Bp	+9 Bp
Other costs	+1 to +3 Bp	N/A

\*Estimated costs are current as of 2004. \*\* +Bp = additional costs measured in basis points associated with issuance

ARS, as shown in Figure 5, have additional unique and required costs. The nature of the instrument requires a broker or remarketing agent to solicit investors, an auction agent to facilitate the periodic auctions, a trustee to manage payments and in most cases, bond insurance to elevate the credit quality of the issue to an AA or AAA rating.

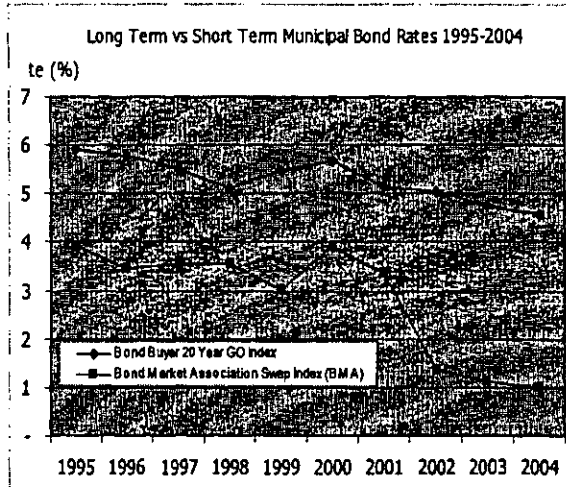
## V. CONSIDERATIONS IN ISSUING ARS

The following items should be reviewed and analyzed when considering the issuance of ARS.

### ARS have lower interest costs than fixed rate debt

Over the past 10 years (through 2004) the spread between long term (fixed) and short term (variable) debt has been significant. Figure 6 shows the 10-year historic interest rate advantage comparing The Bond Buyer 20 Year GO index (fixed rate average) with the Bond Market Association Swap Index (variable rate average). For 2004 the spread is about 3.5 percent.

**Figure 6 - Historic Trends in Interest Rates**



### ARS have higher risk than fixed rate debt

ARS are long term variable rate debt with interest payments determined on a 7, 28, or 35-day basis. In periods of sustained rising rates, interest expense and volatility will rise. Issuers must be aware of the potential impact rapidly rising rates will have on forecasted debt service and cash needs.

Depending on the issuer's tolerance for risk, it may require supplemental hedging strategies to mitigate the variability of interest rates. Issuers employ a variety of mechanisms to lower or eliminate interest rate risk and volatility. The most common are interest rate caps and interest rate swaps.

- Interest Rate Cap

An interest rate cap is used when a variable rate bond issuer enters into a contract with a counterparty (typically a financial institution) to maintain interest rate payments within pre-established limits. In effect, the bond issuer is buying an insurance policy to protect it against high interest rate payments on its variable rate bonds. The counterparty takes the obligation to pay rates above the cap level.

- Interest Rate Swap

Many variable rate issuers use interest rate swaps to hedge their interest rate risk. Interest rate swaps permit borrowers to convert variable rate cash flows into fixed rate cash flows without changing the structure of the underlying bond issue. Variable rate borrowers who want to fix borrowing costs pay a fixed amount to the financial institution, which in turn pays a floating amount to the borrower to settle the underlying variable rate loan obligations.

**Increases in an issuer's variable rate debt ratio may negatively impact its credit rating**

As a general rule, some rating agencies recommend that variable rate debt not exceed 20 percent of total debt outstanding, although many factors may affect the evaluation of the appropriate level.

**Government Finance Officer's Association (GFOA) offers guidelines for issuing variable rate debt**

The Government Finance Officer's Association (GFOA) has issued recommendations and guidelines for the issuance of variable rate debt. These recommendations apply to ARS as well as VRDO bonds or any other variable rate debt instrument.

They include the following:

- Review statutes or ordinances governing the issuance of debt to ensure that issuance of ARS is permitted and understood.
- Ensure that the government's debt policy specifically addresses the use of ARS.
- Consider the ability of the government to manage ARS, including staff requirements to monitor market conditions; record interest rate changes; make adjustments to budgets and financial plans as needed; and manage relationships with investors, liquidity providers, and remarketing agents.
- Evaluate the impact on debt service requirements assuming different interest rate scenarios and develop appropriate contingency plans for rising interest rates.
- Consider the impact of changing interest rates on rate covenants and an issuer's financial position.
- Evaluate the total cost of issuing ARS debt, including fees to brokers, auction agents and trustees, bond insurance costs, additional internal resource needs, and possible use of derivative instruments such as interest rate caps and swaps.

## VI. CONCLUSION

ARS can be a valuable alternative and complement to fixed rate debt in a government borrowing program.

Governmental issuers considering issuing ARS must carefully evaluate their objectives and how this debt will be managed over the long term. Issuance of ARS or any variable rate debt should be guided by the government's overall financial and debt management objectives and its financial condition.

The use of ARS can provide significant benefits including: (1) reducing total interest costs, (2) diversifying the debt portfolio, (3) allowing the opportunity to take advantage of current short term variable interest rate trends, and (4) matching the structure of assets to liabilities.

ARS, however, carry more risk than fixed rate bonds, but these risks can be offset with the appropriate use of derivative products like interest rate caps and variable to fixed interest rate swaps.

ARS, like other variable rate debt instruments, require a greater commitment of time and expertise by staff managing the program. In addition, specific policies regarding the use of variable rate debt must be conformed to the issuer's statutes and addressed with credit rating agencies.

*\*\*\* Thanks and acknowledgement to:  
Mr. Shafiq Jadavji, Vice President,  
Deutsche Bank Trust Company Americas for  
providing his input to this report.*

000072

CALIFORNIA DEBT AND INVESTMENT ADVISORY COMMISSION  
915 CAPITOL MALL, ROOM 400  
SACRAMENTO, CA 95814  
(916) 653-3269

---

Permission is granted to photocopy this document with credit given to CDIAC.

---

Municipal Structured Finance  
Criteria ReportRating Guidelines for Insured  
Floaters**Analysts**

Trudy Zibit  
1 212 908-0689  
trudy.zibit@fitchratings.com

Ronald McGovern  
1 212 908-0513  
ronald.mcGovern@fitchratings.com

Mary Jane Ziga  
1 212 908-0529  
maryjane.ziga@fitchratings.com

Linda Friedman  
1 212 908-0727  
linda.friedman@fitchratings.com

Mario Civico  
1 212 908-0796  
mario.civico@fitchratings.com

*This report was prepared with the assistance  
of Janet Rosen, a consultant to Fitch Ratings.*

**■ Summary**

This report outlines Fitch's rating considerations for variable-rate demand bonds issued with the credit support of municipal bond insurance and the liquidity support provided by standby bond purchase agreements (SBPAs). Debt issuers, such as municipalities, states, local governments, hospitals, universities, utilities, public authorities, and industrial development agencies, often seek to lower their interest costs by issuing debt that accrues interest at short-term rates. Variable-rate demand obligations (VRDOs) are long-term bonds with interest rates that are reset periodically. VRDOs frequently are issued with full credit support obtained through the use of either letters of credit or the combination of municipal bond insurance and liquidity facilities. In the case of the latter, the replacement of the rating of the debt issuer with the rating of the insurance company and liquidity provider results in credit substitution. *(For an explanation of Fitch's considerations for rating debt supported with letters of credit, see Fitch Research on "Guidelines for Rating Direct Pay LOC-Supported Debt," dated Feb. 10, 2005, available on Fitch's web site at [www.fitchratings.com](http://www.fitchratings.com).)*

The combination of municipal bond insurance policies and liquidity facilities provides full credit and liquidity support for VRDOs. When properly structured, Fitch's long-term rating on insured VRDOs (insured floaters) is based on the rating of the municipal bond insurer, and the short-term rating assigned to such transactions is based on the rating of the liquidity provider.

In insured floater transactions, the bond insurance policy or, in some instances, the financial guaranty insurance policy guarantees all payments of principal and interest on the bonds. In addition, if any regularly scheduled debt service payments are recaptured from bondholders in a bankruptcy proceeding of the debt issuer, the insurers agree to replace the payments. Due to these guaranties, holders of insured bonds do not rely on the credit of debt issuers for debt service payments.

Bond insurance policies are issued in standard forms that meet all of Fitch's requirements for credit substitution. However, policies supporting insured floaters often have endorsements attached. Provisions contained in the endorsements must correspond to relevant provisions in the bond documents. Bond insurance policies generally guarantee only regularly scheduled payments of principal and interest, including bonds purchased by the liquidity provider following a tender of bonds (bank bonds) for a specified period. They usually do not cover payments due upon optional or mandatory redemption, other than mandatory sinking fund redemption and redemption of bank bonds.

Sources of payment for purchases generally are remarketing proceeds and liquidity facilities, most often provided in the form of SBPAs. The SBPA

February 25, 2005

[www.fitchratings.com](http://www.fitchratings.com)

# Fitch Ratings

## Public Finance

provides the external liquidity support for tendered bonds in the event of insufficient remarketing proceeds upon any optional or mandatory tender. However, unlike a letter of credit, the SBPA is not an irrevocable, unconditional instrument. In insured floater transactions, the SBPA is subject to immediate termination in the event of certain serious and adverse credit events affecting the bond insurer's long-term rating (for details, see *Early Termination and Replacement of Liquidity Facilities*, page 3). Specifically, Fitch's structured analysis of insured floaters is based on the following principles:

- SBPAs must provide funds sufficient for the payment of purchase price, generally at par plus accrued interest, of all bonds (other than ineligible bonds such as bank bonds) tendered during the modes for which the SBPA provides sufficient interest coverage.
- Documents must clearly delineate and properly coordinate responsibilities among the liquidity provider, trustee, and remarketing and tender agents.
- The liquidity provider's ability to terminate the facility without prior purchase of outstanding bonds may be linked only to substantial deterioration in the credit of the bond insurer. Prior purchase of outstanding bonds must precede the scheduled expiration of a liquidity facility or termination for any other reason.
- Funds drawn under a liquidity facility and other funds provided for purchases must be protected against investment risks and agent liens.
- Bondholders must be protected from risks associated with the bankruptcy of the debt issuer when funds paid to bondholders are not funds from the insurance policy or proceeds from a draw on the SBPA.

Examination of the governing bond documents (whether an indenture, ordinance, or resolution), liquidity facility, and remarketing and tender agent agreements will determine whether these principles are being followed. In addition, Fitch reviews legal opinions to determine whether documents containing the principals outlined above are the legal, valid, and binding obligations of the parties.

### ■ Sufficiency of Funds

In addition to optional tenders of bonds, VRDO holders typically are subject to mandatory tender provisions. Events triggering such mandatory tenders include changes in the method of determining the interest rate (conversion dates) and the expiration, substitution, or termination of the SBPA for other than an immediate termination event. Since SBPAs often are sized to cover only certain interest rate

modes, a conversion of the interest rate mode to a longer mode must trigger a mandatory tender under the bond documents. Moreover, unless the conversion is to an interest rate period that does not permit any tenders or requires a short-term rating to market the bonds, either an increase in the coverage of the SBPA or a replacement of the SBPA would be required upon any such conversion.

In certain cases, such as a substitution of the SBPA, documents must require a mandatory tender if the substitute SBPA results in a reduction or withdrawal of the short-term rating then assigned to the bonds. If a rating affirmation is required in connection with a replacement of the SBPA without the occurrence of a mandatory purchase, holders must receive prior notice of the proposed substitution. This reflects the fact that the vast majority of the buyers of VRDOs are tax-exempt municipal money market funds, which are subject to the regulatory requirements of the Security and Exchange Commission's Rule 2a-7.

Many features of short-term market instruments, such as VRDOs, are designed to meet the needs of the tax-exempt money market funds, and the addition of many notice provisions in bond documents is a result of the trend over time to respond to the requirements of this large constituency of investors to maintain their compliance obligations under Rule 2a-7. While many of the 2a-7 monitorability requirements fall outside of the scope of Fitch's rating criteria, which focus mainly on credit issues and risks, Fitch's guidelines also have evolved to adjust to changing market practices.

When bond documents authorize issuance of additional parity VRDOs, either the funds drawn under the liquidity facility must be segregated for the benefit of supported bondholders, or the bond documents may require an increase in the size of the liquidity facility to cover additional bonds and confirmation from Fitch that the short-term rating will not be reduced as a result of the issuance of additional bonds.

### ■ Delineation of Responsibilities

Bond documents must clearly direct the party required to draw on the SBPA, usually the trustee or tender agent, to seek funds from the liquidity provider whenever remarketing proceeds are inadequate. (For simplicity, at times this report refers to this agent as the trustee.) The mechanics and timing provisions of the remarketing process should correspond to relevant provisions of the SBPA, to

# FitchRatings

## Public Finance

permit the trustee to make timely payments to holders upon all optional and mandatory tenders of bonds.

When VRDOs are tendered and purchased with liquidity facility funds, they are pledged to the bank (bank bonds or pledged bonds) and, while in book-entry form, held at Depository Trust Corporation in accordance with current industry practices. In a non-book entry scenario, documents must require that bank bonds be held by the trustee for the benefit of the bank, and, in either method, bank bonds may not be released until the liquidity facility is reinstated in an amount sufficient to cover those bonds. The trustee may not use funds drawn under the liquidity facility to pay the purchase price of pledged bonds. While the form of SBPAs varies, many documents handle this procedure through the definitions of the available principal and interest components, stating that these amounts are reduced following draws made for payment of the purchase price and increased upon reimbursement of the amounts to the SBPA provider.

### ■ Early Termination and Replacement of Liquidity Facilities

The primary purpose of liquidity facilities is to provide funds for purchases of bonds upon optional and mandatory tender, when remarketing proceeds are insufficient. Holders of insured VRDOs rely ultimately on bond insurers, not debt issuers, for regularly scheduled debt service payments. The insurer's obligation to pay debt service survives adverse changes in the credit condition of the debt issuer. Therefore, adverse changes in the credit of debt issuers do not affect bondholder security.

Consequently, Fitch limits the immediate termination of the SBPA to events that relate to the credit deterioration of the bond insurer. Permitted automatic termination events include the following:

- Voluntary or involuntary bankruptcy or other form of insolvency of the bond insurer.
- Payment default on the insured floater by the debt issuer and insurer.
- Payment default by the insurer on other insured debt.
- Moratorium on debt declared by the insurer.
- Lowering to below investment grade or withdrawal for credit-related reasons of the rating on the bond insurer.
- Repudiation by the bond insurer of the policy insuring the bonds.

- Rendering by a court of a final non-appealable judgment that the policy insuring the bonds is unenforceable.

Termination of liquidity facilities for reasons other than those enumerated above must be preceded by a mandatory purchase of bonds, with funds provided by the liquidity provider. Similarly, bonds must be subject to mandatory tender or redemption prior to the scheduled expiration of the liquidity facility, if the expiration date precedes the maturity date of the bonds.

Neither liquidity facilities nor municipal bond insurance policies may be replaced unless the trustee receives prior notice. Furthermore, VRDOs must be subject to mandatory tender prior to such replacement, unless Fitch provides notice to the trustee that the replacement will not result in a reduction or withdrawal of the existing short- or long-term rating. Bondholders must be notified of the substitution even if the rating will not be affected. *(For further discussion of this requirement, see Sufficiency of Funds, page 2.)*

Additionally, when liquidity documents allow for immediate termination upon any amendment, modification, cancellation, or substitution of the bond insurance policy without the liquidity provider's prior consent, Fitch requires the issuer and trustee to covenant in the bond documents that they will not take any of these actions, which would result in an automatic termination of the liquidity facility, without properly obtaining the liquidity provider's consent.

### ■ Protection of Funds

For payments of the purchase price of VRDOs, bondholders depend on the continued availability of funds after a draw under a liquidity facility. Therefore, funds drawn under the liquidity facility and remarketing proceeds must be protected from any liens of the trustee or any other agents. Moneys held to pay the purchase price should be held uninvested or invested only in direct U.S. government obligations maturing on the date needed to pay bondholders. Funds held for bonds not presented for timely payment should be protected in the same manner.

Funds held for payment of optional redemption also must be protected. Municipal bond insurance policies guarantee payment and, upon recapture in bankruptcy, repayment only of regularly scheduled debt service payments. If a debt issuer opts to redeem its bonds earlier than scheduled, it must deposit funds

sufficient to pay the redemption price with the bond trustee. If the debt issuer is subject to the U.S. Bankruptcy Code preferential transfer provisions, such funds must remain on deposit during the preference period specified in the code, with a minimum 123 days preference period required by Fitch. This requirement reflects the fact that regardless of the debtor location, the filing of an involuntary bankruptcy petition by a creditor in a state with a longer statutory period may trigger application of that longer period. A one-year preference period would apply if the borrower is a partnership. Alternatively, bond documents may direct the trustee to cancel the redemption if sufficient and properly aged funds are not available on the redemption date. Funds held for optional redemption also must be protected as described above for proceeds of remarketing and liquidity draws.

#### ■ Legal Issues

For all Fitch-rated bonds, Fitch requires an opinion of bond counsel that bonds are the legal, valid, and

binding obligation of the debt issuer. When rating liquidity-supported debt, Fitch also requires an opinion that the liquidity facility is the legal, valid, binding, and enforceable obligation of the liquidity provider. These enforceability opinions must be based on the laws of the state under which the liquidity facility is, by its terms, governed. If the liquidity provider is a non-U.S. entity, Fitch requires an enforceability opinion from non-U.S., as well as domestic, counsel.

#### ■ Conclusion

Insured floater structures provide debt issuers with an alternative method for accessing the bond market while eliminating their own credit risk from the transaction. Fitch has published these guidelines to inform market participants and other interested parties of the criteria that Fitch applies when rating insured floater transactions. Fitch welcomes questions or comments from industry participants.

Copyright © 2005 by Fitch, Inc., Fitch Ratings Ltd. and its subsidiaries. One State Street Plaza, NY, NY 10004.  
Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. All of the information contained herein is based on information obtained from issuers, other obligors, underwriters, and other sources which Fitch believes to be reliable. Fitch does not audit or verify the truth or accuracy of any such information. As a result, the information in this report is provided "as is" without any representation or warranty of any kind. A Fitch rating is an opinion as to the creditworthiness of a security. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed, suspended, or withdrawn at anytime for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from USD1,000 to USD750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from USD10,000 to USD1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of Great Britain, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.



Municipal Structured Finance  
Criteria Report**Guidelines for Rating Direct-Pay  
LOC-Supported Debt****Analysts**

Trudy Zibit  
1 212 908-0689  
trudy.zibit@fitchratings.com

Linda Friedman  
1 212 908-0727  
linda.friedman@fitchratings.com

Ronald McGovern  
1 212 908-0513  
ronald.mcgovern@fitchratings.com

Mario Civico  
1 212 908-0798  
mario.civico@fitchratings.com

Mary Jane Ziga  
1 212 908-0529  
maryjane.ziga@fitchratings.com

**■ Summary**

Municipalities, not-for-profit organizations, and for-profit corporations (together, issuer or issuers) seeking to improve market access, broaden investor base, and reduce borrowing costs often utilize irrevocable direct-pay letters of credit (LOCs) issued by commercial banks and other financial institutions (LOC providers) to enhance their capital market transactions. When a transaction is supported by an LOC, the primary source of bondholder security shifts from the issuer to the LOC provider.

When debt issued with direct-pay LOC support is structured according to the guidelines outlined in this report, Fitch Ratings assigns a rating to the issue based on the rating of the LOC provider rather than that of the issuer. Fitch's analysis of LOC-supported transactions is based on the following principles:

- LOCs must be irrevocable obligations of the LOC provider and obligate it to provide sufficient funds to make all required payments due to bondholders in a full and timely manner.
- Documents must clearly delineate and properly coordinate responsibilities among the LOC provider, the bond trustee, the paying agent, the remarketing agent, and the tender agent, as appropriate.
- The funds required to pay bondholders must be protected from any payment risks associated with the issuer.
- Bonds must be redeemed or purchased prior to any expiration or termination of the LOC.
- Bondholders must be shielded from any risks associated with the possible bankruptcy of the issuer.

**■ Basic Documents**

When rating LOC-supported transactions, Fitch reviews all the governing bond documents (whether an indenture, ordinance, or resolution); the credit facility (i.e. the LOC and reimbursement agreement); the remarketing agent and tender agent agreements, if any; opinions regarding the enforceability of the LOC; and bond counsel's legal opinion to ensure that responsibilities set forth in governing documents are legally valid, binding, and enforceable.

**■ Irrevocability**

Unlike lines of credit and other liquidity facilities, LOCs must be irrevocable obligations. The LOC provider may terminate the LOC only after it has provided funds to pay for the purchase, acceleration, or redemption of all secured bonds or notes.

# FitchRatings

## Public Finance

### ■ Sufficiency of Funds

LOCs must be sized to equal the amount necessary to support all covered payments on the bonds or notes. Thus, the stated amount of the LOC must cover full principal plus the amount of interest that would accrue during the longest covered interest period at the maximum interest rate allowed under the bond documents. In LOCs where interest is not immediately and unconditionally reinstated following an interest drawing, the reinstatement period must be taken into consideration and covered in the sizing of the interest component of the LOC.

The basic formula that Fitch uses to calculate required interest coverage can be summarized as follows: the maximum number of days that can accrue between interest payment dates plus the length of any reinstatement period following a regularly scheduled interest draw plus the maximum number of days from the end of the reinstatement period to the required mandatory purchase, mandatory redemption, or acceleration date.

If bonds are subject to mandatory redemption during the term of the LOC, the LOC also must be available to pay principal, interest, and premium, if any, due upon redemption. In addition, if the governing bond documents authorize optional redemptions, with or without premiums, preference-proofed funds sufficient to pay the redemption price must be available to the trustee, first from the LOC to maintain the direct-pay structure of the transaction or from another source. If the source of preference-proofed funds is not the LOC, the trustee should not send the optional redemption notice until such funds are on hand. Alternatively, bond documents may authorize a trustee to cancel an optional redemption if adequate preference-proofed moneys are not received prior to the redemption date. This option requires that holders be notified of the conditional nature of the redemption (*see Bankruptcy Concerns, page 3*).

When the LOC does not include sufficient funds to cover all possible interest rate determination modes, bondholders must be protected in the event of a total or partial conversion to the uncovered interest modes. Prior to any conversion of the bonds to an interest rate determination mode with a longer interest period than that initially covered by the LOC, Fitch requires that either the LOC coverage be increased or a substitute LOC, appropriately sized, be provided. Upon conversion of the interest rate mode to a longer mode or in the event a substitute LOC is provided,

the bond documents must provide for a mandatory purchase. In either circumstance, the bond documents may permit the bondholders to retain their bonds if Fitch provides affirmation that the rating will not be reduced or withdrawn as a result of such actions.

### ■ Delineation of Responsibilities

A bondholder's agent, such as a trustee, paying agent, or tender agent (hereafter referred to as trustee), has a fiduciary responsibility to act on behalf of bondholders when drawing on the LOC. The trustee must also have clear instructions to draw on the LOC to make timely payments to bondholders. Therefore, bond documents must clearly identify the trustee's responsibilities to seek payment from the LOC. Directions to the trustee in the bond indenture must match the provisions of the LOC and permit the trustee to draw on the LOC without requiring any indemnification or imposing any conditions. Neither the bond indenture nor the LOC may contain any extraneous conditions to be satisfied prior to seeking payment and providing funds under the LOC.

In assigning ratings to variable-rate demand obligations (VRDOs), Fitch reviews the purchase and remarketing mechanics specified in the transaction documents to ensure full and timely payment of the purchase price of all tendered bonds.

Purchases may be optional or mandatory upon the occurrence of specified events. Usually, bondholders deliver or tender their bonds to a tender agent, which may or may not be the trustee or paying agent. A remarketing agent is responsible for reselling or remarketing tendered bonds and transferring remarketing proceeds to the trustee or tender agent. If the remarketing agent fails to remarket all tendered bonds, the trustee must be directed to draw on the LOC to pay tendering bondholders the purchase price of the bonds, which usually equals principal plus interest accrued up to but not including the date of purchase.

When bonds are tendered and purchased with LOC funds, the bonds are pledged to the LOC provider and held at Depository Trust Corporation (DTC) in accordance with current industry practices (such bonds are typically held at DTC with the LOC provider having beneficial ownership of the bonds). The LOC provider reduces the amount available for future principal, interest, and purchase price payments by the amount of any purchase draw. The LOC provider's security interest in the bonds is not released until the bonds are remarketed, the LOC

# FitchRatings

## Public Finance

provider is reimbursed, and the LOC is fully reinstated in an amount sufficient to cover the remarketed bonds.

### ■ Protection of Funds

Once a payment is made under the LOC, the trustee applies the funds to make payments on the bonds. In the event the trustee holds LOC proceeds after a debt service payment date for bondholders that do not present their bonds for payment, such funds must be protected. Therefore, these funds must be held uninvested or invested in liquid and creditworthy instruments. Funds must also remain free from any liens of the trustee, the tender agent, or the remarketing agent.

### ■ Expiration, Termination, or Replacement of Credit Facility

Although irrevocable, LOCs often expire and may be terminated prior to the maturity date of the bonds they secure. Early termination events and expiration dates are specified in the LOC, and upon the occurrence of either, bondholder security will be altered. Fitch's rating on LOC-supported debt expires upon termination or expiration of the LOC. Therefore, bond documents must require that the purchase or redemption price of all bonds be paid with the proceeds of a draw under the terminating or expiring LOC.

Bond documents may provide an option to substitute the LOC without a mandatory tender of bonds if the trustee receives written notice from Fitch that the rating assigned to the bonds will not be reduced or withdrawn as a result of the substitution. Alternate or substitute LOCs may be authorized upon expiration or termination of the current LOC, as well as upon occurrence of other events such as a reduction in the rating of the LOC provider or at the borrower's election. Bondholders must receive prior notice of any proposed LOC substitution, whether or not their bonds will be subject to mandatory purchase.

### ■ Confirming LOCs

A confirming LOC may be utilized to enhance the rating of a bond issue when the LOC provider providing the underlying LOC is either unrated or rated too low to enhance market access. In confirming LOC structures, the timing and mechanics of remarketing, notification and draw times, and termination provisions have to be coordinated between the primary and confirming LOCs to meet the requirement for full and timely payment of amounts due on the bonds. When a confirming LOC structure meets Fitch's criteria, upon completion of

the review of all transaction documents, which must include the confirming LOC provider documents along with all the other basic documents noted on page 1, Fitch assigns the rating of the confirming LOC provider to the issue.

### ■ Bankruptcy Concerns

When a bond rating is based on the credit quality of the LOC provider, credit deterioration of the debt issuer or borrower of bond proceeds should pose no risk to bondholders. Direct-pay LOCs remain available to make payments to bondholders in the event of bankruptcy of the debt issuer or borrower of proceeds.

If an LOC is not sized to cover any premium due upon optional redemptions, funds used to make such payments must be sufficiently aged to meet the legal criteria of preference-protected moneys. Under the U.S. Bankruptcy Code, payments made by debtors, other than municipalities, within periods ranging from 90 days to one year of bankruptcy filing (preference period) are deemed preferential. The relationship of the debtor and creditor and the applicability of certain state laws, which increase the minimum preference period to 123 days, determine the duration of the preference period. Fitch requires a minimum preference period of 123 days because, regardless of the debtor location, the filing of an involuntary bankruptcy petition by a creditor in a state with the longer statutory period may trigger application of that longer period. In addition, if the borrower of bond proceeds is a partnership, Fitch requires a one-year preference period. This extended preference period is needed because payments made by general partners on behalf of each other or of the partnership are considered by the U.S. Bankruptcy Code to be payments by "insiders," which may be recovered by a bankruptcy trustee when made within one year of a bankruptcy filing by the borrower or insider.

Fitch does not require legal opinions to address bankruptcy issues for payments on bonds made with LOC proceeds or remarketing proceeds, since payments made by a financial institution directly to a trustee for the benefit of bondholders, pursuant to the terms of an irrevocable LOC, are not considered payments by the debt issuer or borrower. Remarketing proceeds from non-insiders are not subject to recovery by the bankruptcy trustee.

### ■ Required Legal Opinions

Fitch requires the following legal opinions: an opinion of bond counsel that the bonds are the legal, valid, and binding obligation of the debt issuer; and an enforceability

opinion stating that the LOC is the legal, valid, and binding obligation of the LOC provider. The opinion also must state that the LOC is enforceable against the provider in all circumstances, except in the event of a bankruptcy (or other form of insolvency) of the LOC provider. These enforceability opinions must be based on the laws of the state under which the credit facility is governed. If the LOC provider is a non-U.S. entity, Fitch also requires an enforceability opinion from both foreign and domestic counsel.

#### ■ Conclusion

Fitch has published these guidelines to inform issuers and their financing teams of the criteria Fitch employs when reviewing and rating LOC-supported transactions. Direct-pay LOCs have been used for more than 20 years as a credit substitute for issuers seeking access to the bond markets without having to rely on their own credit rating. While this is a well-established market, as industry standards evolve, Fitch will ensure that its guidelines meet the needs of changing market practices and applications. Fitch welcomes any questions, comments, or suggestions.

Copyright © 2005 by Fitch, Inc., Fitch Ratings Ltd. and its subsidiaries. One State Street Plaza, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. All of the information contained herein is based on information obtained from issuers, other obligors, underwriters, and other sources which Fitch believes to be reliable. Fitch does not audit or verify the truth or accuracy of any such information. As a result, the information in this report is provided "as is" without any representation or warranty of any kind. A Fitch rating is an opinion as to the creditworthiness of a security. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed, suspended, or withdrawn at anytime for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from USD1,000 to USD750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from USD10,000 to USD1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of Great Britain, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.



## ISSUE BRIEF

California Debt and Investment Advisory Commission

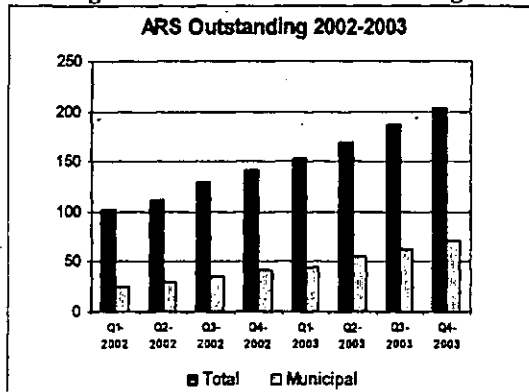
August 2004

### AUCTION RATE SECURITIES

Douglas Skarr  
CDIAC Policy Research Unit

The Auction Rate Securities market has expanded significantly in the public finance sector since 2001. Nationwide, issuance of auction rate securities, including the public finance area, grew from \$100 billion in the first quarter of 2002 to \$200 billion by the end of the fourth quarter of 2003. Public finance has become the fastest-growing sector to use auction rate securities, with total issuance projected to grow at double-digit rates in the future (see Figure 1).

Figure 1 – ARS Issues Outstanding



The use of auction rate financing is becoming more attractive for many reasons, especially in comparison to variable rate demand obligations (VRDO). Auction Rate Securities have no "put" or tender feature, no letter-of-credit requirement, and no need for an annual short term bond rating, all of which increase the cost of issuance and maintenance of VRDO. However, these securities may not be appropriate for all municipal issuers. Municipalities planning to issue Auction Rate

Securities must carefully evaluate the current environment, their objectives, and consider how this debt will be managed over the long term.

This *Issue Brief* provides an overview of the market, mechanics, costs, benefits and risks associated with Auction Rate Securities.

#### I. DEFINITION AND PURPOSE

Auction Rate Securities (ARS) are long term, variable rate bonds tied to short term interest rates. ARS have a long term nominal maturity with interest rates reset through a modified Dutch auction, at predetermined short term intervals, usually 7, 28, or 35 days. They trade at par and are callable at par on any interest payment date at the option of the issuer. Interest is paid at the current period based on the interest rate determined in the prior auction period.

Although ARS are issued and rated as long term bonds (20 to 30 years), they are priced and traded as short term instruments because of the liquidity provided through the interest rate reset mechanism. Frequent issuers of municipal ARS include traditional issuers of tax-exempt debt such as municipalities, non-profit hospitals, utilities, housing finance agencies, student loan finance authorities and universities. Municipal ARS issues are typically of high credit quality. Historically, over 75 percent of the issues sold have received the highest credit rating available from the major credit agencies, generally because of bond insurance.

ARS investors are typically high net worth individuals (for tax-exempt issues) or corporations (for taxable issues). Money market funds are ineligible to hold ARS due to Securities and Exchange Commission Rule 2a-7, restricting them to securities with a final maturity of 397 days or less.

ARS trade at par value and typically include a "multi-modal" conversion feature that allows for conversion to long term fixed or variable rate bonds. The usual minimum issue size is \$25 million, in denominations of \$25,000.

In addition to the typical bond issue participants, ARS require a broker/dealer (either a single underwriter or syndicate of multiple broker/dealers) to structure the issue, underwrite, distribute, and provide and increase liquidity to ARS investors. ARS also require an "auction agent" to receive bids from the broker/dealers, determine the winning bid and reset rate, and act as liaison between the issuer, brokers, trustees, and security depositors.

ARS carry the typical up front fees associated with a traditional fixed rate bond issuance along with ongoing annual fees; industry standard is \$5/bond for initial placement fee plus annual fees of 25 basis points for broker/dealer fees and 1-2 basis point(s) for auction agent fees. Because ARS have no letter of credit requirement, letter of credit fees are eliminated, but additional costs of bond insurance may be necessary.

Credit risk associated with ARS mirror those of other municipal and corporate issues in terms of default risk associated with the issuer. Because ARS do not carry a "put" feature (which allows the bondholder to require the purchase of the bonds by the issuer or by a specified third party), they are very sensitive to changes in credit ratings and normally require the highest ratings

(e.g. AAA/Aaa) to make them marketable. This is usually achieved with bond insurance.

## II. DUTCH AUCTION MECHANICS

The interest rate on ARS is determined through a Dutch auction process. The total number of shares available to auction at any given period is determined by the number of existing bond holders who wish to sell or hold bonds only at a minimum yield.

Existing holders and potential investors enter a competitive bidding process through broker/dealer(s). Buyers specify the number of shares, in denominations of \$25,000, they wish to purchase with the lowest interest rate they are willing to accept.

Each bid and order size is ranked from lowest to highest minimum bid rate. The lowest bid rate at which all the shares can be sold at par establishes the interest rate, otherwise known as the "clearing rate". This rate is paid on the entire issue for the upcoming period. Investors who bid a minimum rate above the clearing rate receive no bonds, while those whose minimum bid rates were at or below the clearing rate receive the clearing rate for the next period.

Holders of existing ARS have the option to:

- Hold at Market: hold an existing position regardless of the new interest rate (these shares are not included in auction).
- Hold at Rate: bid to hold an existing position at a specified minimum rate.
- Sell: request to sell an existing position regardless of the interest rate set at the auction.

Potential buyers have the option to:

- Buy: submit a bid to buy a new position at a specified minimum interest rate (new buyers or existing holders adding to their position at a specified interest rate).

Figure 2 - Example of Sales Process

<b>\$25,000,000 ARS Issue</b> OUTSTANDING 1,000 SHARES @ \$25,000 EACH AVAILABLE 500 SHARES (INCLUDES ALL SELL AND HOLD AT RATE ORDERS)				
Bidder	Order Placed Shares	Bid Type	Bid Minimum Rate	Orders Filled @ 1.00% (clearing rate)
1	100	Buy	Any	100
2	200	Hold at Rate	.90%	200
3	100	Hold at Rate	.95%	100
4	200	Buy	1.00%	100 (Partial)
5	100	Sell	Any	Shares are Sold
6	100	Hold at Rate	1.03%	Shares are Sold
7	300	Buy	1.03%	Not Filled
8	200	Buy	1.10%	Not Filled

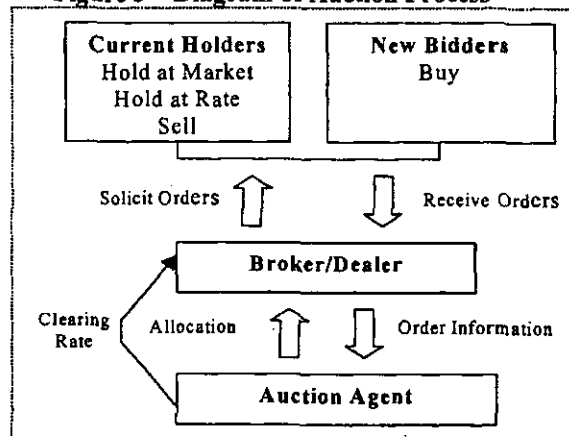
Figure 2 illustrates how the "clearing rate" is determined for an ARS offering of 500 shares, made up of (1) orders to sell and (2) orders to hold at rate. In this example, orders for 1,300 shares of different bid types were placed. The clearing bid is 1.00 percent because it provided the last share purchase to clear the auction total of 500 shares.

The entire orders for bidders 1, 2, and 3, totaling 400 shares, were filled at the clearing rate of 1.00 percent. Bidder 4's 200-share order was partially filled for 100 shares because a maximum of 500 shares available at this auction was reached. The orders for Bidders 5 and 6 were sold. Bidders 7 and 8 had buy orders that were not filled.

### III. ARS AUCTION PROCESS

Figure 3 provides a diagram of the auction process.

Figure 3 - Diagram of Auction Process



- Investors specify the par amount of securities they want and what they are willing to pay.
- The broker/dealer(s) conveys the bids to the auction agent.
- The auction agent, who is a third-party bank selected by the issuer, collects all the bids from all participating broker/dealer(s) on behalf of the investors.
- The auction agent assembles all the bids in ascending rate order and determines the clearing rate.
- The bids at or lower than the clearing rate will receive the bonds. In the event of multiple bids at the clearing rate, the auction agent will allocate securities on a pro-rata basis. Existing holders receive preference over new bidders at the same rate.
- After selection, the auction agent notifies the broker/dealer(s) of the auction results.
- The broker/dealer(s) record and settle the trades for next business day settlement.

A "failed auction" can occur due to a *lack of demand* and no clearing bid received. In the event of a failed auction, existing holders will hold their positions at the maximum rate set in the official statement until sufficient bids are entered to set a clearing bid at the next auction. Although the underwriting broker/dealers are not required to do so, they can provide a

"clearing bid" to ensure the success of each auction and provide liquidity to investors who wish to sell. Failed auctions are very rare and are associated with downgrades in credit quality of either the issuer or insurer of the issue.

For auction periods with a *lack of supply*, where all existing holders wish to continue to hold, an "all hold" rate is paid for the next period. This rate is established in the official statement and is generally tied to the Bond Market Association Index (BMA) rates or commercial paper rates.

Interest is paid by a trustee or paying agent. Interest payments to holders in the current month will be based on the interest rate determined in the prior month's auction period. This lag time is necessary to provide time for clearing and administration of the payments.

#### IV. ARS COMPARED TO VARIABLE RATE DEMAND OBLIGATIONS

ARS are an alternative to variable rate demand obligation (VRDO) bonds. A VRDO is a security for which the interest rate is reset periodically, typically through a remarketing process, or according to a specified index. The bond's demand feature permits the bondholder to require the purchase of the bonds by the issuer or by a specified third party, either periodically, at a certain time prior to maturity, or upon the occurrence of specified events or conditions. This process is often referred to as "putting" a bond or exercising a "tender option". Interest rates are generally based on market conditions and the length of time until the bondholder can exercise the put option. Because of the put feature, the VRDO normally requires a bank letter of credit.

Whereas a VRDO would generally require a letter of credit, ARS do not because the

investor does not possess a put option but rather relies on the liquidity generated by the Dutch auction process and the credit-worthiness of the issuer or insurer. Although no letter of credit is required, most issues carry bond insurance to elevate them to the highest credit rating. The following table describes typical differences in features between ARS and VRDO bonds.

Figure 4 – Feature Comparison: ARS versus VRDO

	VRDO	ARS
Denominations	\$100,000	\$25,000 (Tax-Exempt) \$50,000 (Taxable)
Interest Rate Period	Daily, weekly, monthly, etc.	7 day (Non-AMT), 28 day (Taxable), 35 day (AMT)
Interest Payment Period	Monthly or Semi-Annually	Business day following the auction
Change in Interest Rate Period	Yes	Yes
Insurance	Must at least have a liquidity facility	Typically Insured
Credit Enhancement	AA/Aa or better plus liquidity	AAA/Aaa
Remarketing	Yes	Broker/dealer
Tender Option	Yes	No (subject to mandatory purchase on conversion date to another mode)
Redemption Provisions	Callable on any interest payment date at par value	Callable on any interest payment date at par value
Typical Investors	Mainly money market funds, corporate investors, high net worth investors	Corporate and high net worth investors, bond funds, and bank trust departments to a lesser extent



The interest rate on ARS is usually slightly higher than that of VRDO, which would generally result in a higher cost of funds for the borrower. In addition, the upfront fee (e.g. initial placement fee) associated with ARS is generally higher than that of VRDO. However, the cost of obtaining a letter of credit in an issuance of VRDO, along with risks associated with the elimination and/or renewals of the letter of credit, can make the cost of funds for an issuance of VRDO on par or even more expensive than that of an issuance of ARS.

All costs associated with the issuance (e.g., bond insurance, broker and auction fees) should be considered in the decision to issue ARS (see Figure 5).

**Figure 5 - Cost Comparison: ARS versus VRDO**

	ARS	VRDO
	+BMA Index	+BMA Index
Initial placement fee	N/A	+65 Bp**
Bond insurance	+7 Bp	N/A
Broker and auction fees	+5 Bp	+3 Bp
Letter of credit costs	+25 Bp	+9 Bp
Interest rate differential	+1 to +3 Bp	N/A

\*Estimated costs are current as of 2004. \*\* +Bp = additional costs measured in basis points associated with issuance

ARS, as shown in Figure 5, have additional unique and required costs. The nature of the instrument requires a broker or remarketing agent to solicit investors, an auction agent to facilitate the periodic auctions, a trustee to manage payments and in most cases, bond insurance to elevate the credit quality of the issue to an AA or AAA rating.

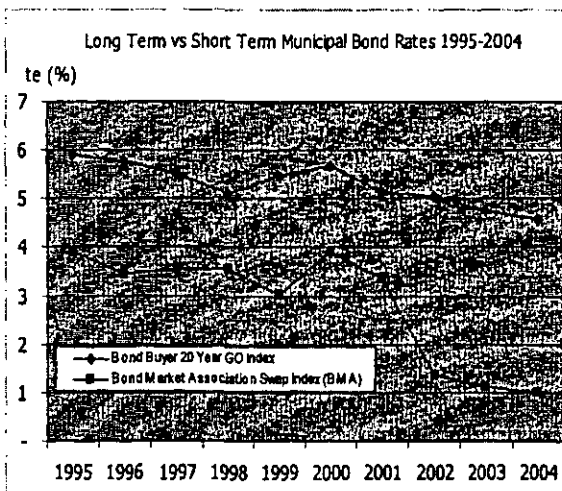
## V. CONSIDERATIONS IN ISSUING ARS

The following items should be reviewed and analyzed when considering the issuance of ARS.

### ARS have lower interest costs than fixed rate debt

Over the past 10 years (through 2004) the spread between long term (fixed) and short term (variable) debt has been significant. Figure 6 shows the 10-year historic interest rate advantage comparing The Bond Buyer 20 Year GO index (fixed rate average) with the Bond Market Association Swap Index (variable rate average). For 2004 the spread is about 3.5 percent.

**Figure 6 - Historic Trends in Interest Rates**



### ARS have higher risk than fixed rate debt

ARS are long term variable rate debt with interest payments determined on a 7, 28, or 35-day basis. In periods of sustained rising rates, interest expense and volatility will rise. Issuers must be aware of the potential impact rapidly rising rates will have on forecasted debt service and cash needs.

Depending on the issuer's tolerance for risk, it may require supplemental hedging strategies to mitigate the variability of interest rates. Issuers employ a variety of mechanisms to lower or eliminate interest rate risk and volatility. The most common are interest rate caps and interest rate swaps.

- Interest Rate Cap

An interest rate cap is used when a variable rate bond issuer enters into a contract with a counterparty (typically a financial institution) to maintain interest rate payments within pre-established limits. In effect, the bond issuer is buying an insurance policy to protect it against high interest rate payments on its variable rate bonds. The counterparty takes the obligation to pay rates above the cap level.

- Interest Rate Swap

Many variable rate issuers use interest rate swaps to hedge their interest rate risk. Interest rate swaps permit borrowers to convert variable rate cash flows into fixed rate cash flows without changing the structure of the underlying bond issue. Variable rate borrowers who want to fix borrowing costs pay a fixed amount to the financial institution, which in turn pays a floating amount to the borrower to settle the underlying variable rate loan obligations.

**Increases in an issuer's variable rate debt ratio may negatively impact its credit rating**

As a general rule, some rating agencies recommend that variable rate debt not exceed 20 percent of total debt outstanding, although many factors may affect the evaluation of the appropriate level.

**Government Finance Officer's Association (GFOA) offers guidelines for issuing variable rate debt**

The Government Finance Officer's Association (GFOA) has issued recommendations and guidelines for the issuance of variable rate debt. These recommendations apply to ARS as well as VRDO bonds or any other variable rate debt instrument.

They include the following:

- Review statutes or ordinances governing the issuance of debt to ensure that issuance of ARS is permitted and understood.
- Ensure that the government's debt policy specifically addresses the use of ARS.
- Consider the ability of the government to manage ARS, including staff requirements to monitor market conditions; record interest rate changes; make adjustments to budgets and financial plans as needed; and manage relationships with investors, liquidity providers, and remarketing agents.
- Evaluate the impact on debt service requirements assuming different interest rate scenarios and develop appropriate contingency plans for rising interest rates.
- Consider the impact of changing interest rates on rate covenants and an issuer's financial position.
- Evaluate the total cost of issuing ARS debt, including fees to brokers, auction agents and trustees, bond insurance costs, additional internal resource needs, and possible use of derivative instruments such as interest rate caps and swaps.

## VI. CONCLUSION

ARS can be a valuable alternative and complement to fixed rate debt in a government borrowing program.

Governmental issuers considering issuing ARS must carefully evaluate their objectives and how this debt will be managed over the long term. Issuance of ARS or any variable rate debt should be guided by the government's overall financial and debt management objectives and its financial condition.

The use of ARS can provide significant benefits including: (1) reducing total interest costs, (2) diversifying the debt portfolio, (3) allowing the opportunity to take advantage of current short term variable interest rate trends, and (4) matching the structure of assets to liabilities.

ARS, however, carry more risk than fixed rate bonds, but these risks can be offset with the appropriate use of derivative products like interest rate caps and variable to fixed interest rate swaps.

ARS, like other variable rate debt instruments, require a greater commitment of time and expertise by staff managing the program. In addition, specific policies regarding the use of variable rate debt must be conformed to the issuer's statutes and addressed with credit rating agencies.

*\*\*\* Thanks and acknowledgement to:  
Mr. Shafiq Jadavji, Vice President,  
Deutsche Bank Trust Company Americas for  
providing his input to this report.*

000088

CALIFORNIA DEBT AND INVESTMENT ADVISORY COMMISSION  
915 CAPITOL MALL, ROOM 400  
SACRAMENTO, CA 95814  
(916) 653-3269

---

Permission is granted to photocopy this document with credit given to CDIAC.

---

Municipal Structured Finance  
Criteria ReportRating Guidelines for Insured  
Floaters**Analysts**

Trudy Zibit  
1 212 908-0689  
trudy.zibit@fitchratings.com

Ronald McGovern  
1 212 908-0513  
ronald.mcGovern@fitchratings.com

Mary Jane Ziga  
1 212 908-0529  
maryjane.ziga@fitchratings.com

Linda Friedman  
1 212 908-0727  
linda.friedman@fitchratings.com

Mario Civico  
1 212 908-0796  
mario.civico@fitchratings.com

*This report was prepared with the assistance  
of Janet Rosen, a consultant to Fitch Ratings.*

**■ Summary**

This report outlines Fitch's rating considerations for variable-rate demand bonds issued with the credit support of municipal bond insurance and the liquidity support provided by standby bond purchase agreements (SBPAs). Debt issuers, such as municipalities, states, local governments, hospitals, universities, utilities, public authorities, and industrial development agencies, often seek to lower their interest costs by issuing debt that accrues interest at short-term rates. Variable-rate demand obligations (VRDOs) are long-term bonds with interest rates that are reset periodically. VRDOs frequently are issued with full credit support obtained through the use of either letters of credit or the combination of municipal bond insurance and liquidity facilities. In the case of the latter, the replacement of the rating of the debt issuer with the rating of the insurance company and liquidity provider results in credit substitution. *(For an explanation of Fitch's considerations for rating debt supported with letters of credit, see Fitch Research on "Guidelines for Rating Direct Pay LOC-Supported Debt," dated Feb. 10, 2005, available on Fitch's web site at [www.fitchratings.com](http://www.fitchratings.com).)*

The combination of municipal bond insurance policies and liquidity facilities provides full credit and liquidity support for VRDOs. When properly structured, Fitch's long-term rating on insured VRDOs (insured floaters) is based on the rating of the municipal bond insurer, and the short-term rating assigned to such transactions is based on the rating of the liquidity provider.

In insured floater transactions, the bond insurance policy or, in some instances, the financial guaranty insurance policy guarantees all payments of principal and interest on the bonds. In addition, if any regularly scheduled debt service payments are recaptured from bondholders in a bankruptcy proceeding of the debt issuer, the insurers agree to replace the payments. Due to these guaranties, holders of insured bonds do not rely on the credit of debt issuers for debt service payments.

Bond insurance policies are issued in standard forms that meet all of Fitch's requirements for credit substitution. However, policies supporting insured floaters often have endorsements attached. Provisions contained in the endorsements must correspond to relevant provisions in the bond documents. Bond insurance policies generally guarantee only regularly scheduled payments of principal and interest, including bonds purchased by the liquidity provider following a tender of bonds (bank bonds) for a specified period. They usually do not cover payments due upon optional or mandatory redemption, other than mandatory sinking fund redemption and redemption of bank bonds.

Sources of payment for purchases generally are remarketing proceeds and liquidity facilities, most often provided in the form of SBPAs. The SBPA

# Fitch Ratings

## Public Finance

provides the external liquidity support for tendered bonds in the event of insufficient remarketing proceeds upon any optional or mandatory tender. However, unlike a letter of credit, the SBPA is not an irrevocable, unconditional instrument. In insured floater transactions, the SBPA is subject to immediate termination in the event of certain serious and adverse credit events affecting the bond insurer's long-term rating (for details, see *Early Termination and Replacement of Liquidity Facilities*, page 3). Specifically, Fitch's structured analysis of insured floaters is based on the following principles:

- SBPAs must provide funds sufficient for the payment of purchase price, generally at par plus accrued interest, of all bonds (other than ineligible bonds such as bank bonds) tendered during the modes for which the SBPA provides sufficient interest coverage.
- Documents must clearly delineate and properly coordinate responsibilities among the liquidity provider, trustee, and remarketing and tender agents.
- The liquidity provider's ability to terminate the facility without prior purchase of outstanding bonds may be linked only to substantial deterioration in the credit of the bond insurer. Prior purchase of outstanding bonds must precede the scheduled expiration of a liquidity facility or termination for any other reason.
- Funds drawn under a liquidity facility and other funds provided for purchases must be protected against investment risks and agent liens.
- Bondholders must be protected from risks associated with the bankruptcy of the debt issuer when funds paid to bondholders are not funds from the insurance policy or proceeds from a draw on the SBPA.

Examination of the governing bond documents (whether an indenture, ordinance, or resolution), liquidity facility, and remarketing and tender agent agreements will determine whether these principles are being followed. In addition, Fitch reviews legal opinions to determine whether documents containing the principals outlined above are the legal, valid, and binding obligations of the parties.

### ■ Sufficiency of Funds

In addition to optional tenders of bonds, VRDO holders typically are subject to mandatory tender provisions. Events triggering such mandatory tenders include changes in the method of determining the interest rate (conversion dates) and the expiration, substitution, or termination of the SBPA for other than an immediate termination event. Since SBPAs often are sized to cover only certain interest rate

modes, a conversion of the interest rate mode to a longer mode must trigger a mandatory tender under the bond documents. Moreover, unless the conversion is to an interest rate period that does not permit any tenders or requires a short-term rating to market the bonds, either an increase in the coverage of the SBPA or a replacement of the SBPA would be required upon any such conversion.

In certain cases, such as a substitution of the SBPA, documents must require a mandatory tender if the substitute SBPA results in a reduction or withdrawal of the short-term rating then assigned to the bonds. If a rating affirmation is required in connection with a replacement of the SBPA without the occurrence of a mandatory purchase, holders must receive prior notice of the proposed substitution. This reflects the fact that the vast majority of the buyers of VRDOs are tax-exempt municipal money market funds, which are subject to the regulatory requirements of the Security and Exchange Commission's Rule 2a-7.

Many features of short-term market instruments, such as VRDOs, are designed to meet the needs of the tax-exempt money market funds, and the addition of many notice provisions in bond documents is a result of the trend over time to respond to the requirements of this large constituency of investors to maintain their compliance obligations under Rule 2a-7. While many of the 2a-7 monitorability requirements fall outside of the scope of Fitch's rating criteria, which focus mainly on credit issues and risks, Fitch's guidelines also have evolved to adjust to changing market practices.

When bond documents authorize issuance of additional parity VRDOs, either the funds drawn under the liquidity facility must be segregated for the benefit of supported bondholders, or the bond documents may require an increase in the size of the liquidity facility to cover additional bonds and confirmation from Fitch that the short-term rating will not be reduced as a result of the issuance of additional bonds.

### ■ Delineation of Responsibilities

Bond documents must clearly direct the party required to draw on the SBPA, usually the trustee or tender agent, to seek funds from the liquidity provider whenever remarketing proceeds are inadequate. (For simplicity, at times this report refers to this agent as the trustee.) The mechanics and timing provisions of the remarketing process should correspond to relevant provisions of the SBPA, to

# FitchRatings

## Public Finance

permit the trustee to make timely payments to holders upon all optional and mandatory tenders of bonds.

When VRDOs are tendered and purchased with liquidity facility funds, they are pledged to the bank (bank bonds or pledged bonds) and, while in book-entry form, held at Depository Trust Corporation in accordance with current industry practices. In a non-book entry scenario, documents must require that bank bonds be held by the trustee for the benefit of the bank, and, in either method, bank bonds may not be released until the liquidity facility is reinstated in an amount sufficient to cover those bonds. The trustee may not use funds drawn under the liquidity facility to pay the purchase price of pledged bonds. While the form of SBPAs varies, many documents handle this procedure through the definitions of the available principal and interest components, stating that these amounts are reduced following draws made for payment of the purchase price and increased upon reimbursement of the amounts to the SBPA provider.

### ■ Early Termination and Replacement of Liquidity Facilities

The primary purpose of liquidity facilities is to provide funds for purchases of bonds upon optional and mandatory tender, when remarketing proceeds are insufficient. Holders of insured VRDOs rely ultimately on bond insurers, not debt issuers, for regularly scheduled debt service payments. The insurer's obligation to pay debt service survives adverse changes in the credit condition of the debt issuer. Therefore, adverse changes in the credit of debt issuers do not affect bondholder security.

Consequently, Fitch limits the immediate termination of the SBPA to events that relate to the credit deterioration of the bond insurer. Permitted automatic termination events include the following:

- Voluntary or involuntary bankruptcy or other form of insolvency of the bond insurer.
- Payment default on the insured floater by the debt issuer and insurer.
- Payment default by the insurer on other insured debt.
- Moratorium on debt declared by the insurer.
- Lowering to below investment grade or withdrawal for credit-related reasons of the rating on the bond insurer.
- Repudiation by the bond insurer of the policy insuring the bonds.

- Rendering by a court of a final non-appealable judgment that the policy insuring the bonds is unenforceable.

Termination of liquidity facilities for reasons other than those enumerated above must be preceded by a mandatory purchase of bonds, with funds provided by the liquidity provider. Similarly, bonds must be subject to mandatory tender or redemption prior to the scheduled expiration of the liquidity facility, if the expiration date precedes the maturity date of the bonds.

Neither liquidity facilities nor municipal bond insurance policies may be replaced unless the trustee receives prior notice. Furthermore, VRDOs must be subject to mandatory tender prior to such replacement, unless Fitch provides notice to the trustee that the replacement will not result in a reduction or withdrawal of the existing short- or long-term rating. Bondholders must be notified of the substitution even if the rating will not be affected. *(For further discussion of this requirement, see Sufficiency of Funds, page 2.)*

Additionally, when liquidity documents allow for immediate termination upon any amendment, modification, cancellation, or substitution of the bond insurance policy without the liquidity provider's prior consent, Fitch requires the issuer and trustee to covenant in the bond documents that they will not take any of these actions, which would result in an automatic termination of the liquidity facility, without properly obtaining the liquidity provider's consent.

### ■ Protection of Funds

For payments of the purchase price of VRDOs, bondholders depend on the continued availability of funds after a draw under a liquidity facility. Therefore, funds drawn under the liquidity facility and remarketing proceeds must be protected from any liens of the trustee or any other agents. Moneys held to pay the purchase price should be held uninvested or invested only in direct U.S. government obligations maturing on the date needed to pay bondholders. Funds held for bonds not presented for timely payment should be protected in the same manner.

Funds held for payment of optional redemption also must be protected. Municipal bond insurance policies guarantee payment and, upon recapture in bankruptcy, repayment only of regularly scheduled debt service payments. If a debt issuer opts to redeem its bonds earlier than scheduled, it must deposit funds

# Fitch Ratings

## Public Finance

sufficient to pay the redemption price with the bond trustee. If the debt issuer is subject to the U.S. Bankruptcy Code preferential transfer provisions, such funds must remain on deposit during the preference period specified in the code, with a minimum 123 days preference period required by Fitch. This requirement reflects the fact that regardless of the debtor location, the filing of an involuntary bankruptcy petition by a creditor in a state with a longer statutory period may trigger application of that longer period. A one-year preference period would apply if the borrower is a partnership. Alternatively, bond documents may direct the trustee to cancel the redemption if sufficient and properly aged funds are not available on the redemption date. Funds held for optional redemption also must be protected as described above for proceeds of remarketing and liquidity draws.

### ■ Legal Issues

For all Fitch-rated bonds, Fitch requires an opinion of bond counsel that bonds are the legal, valid, and

binding obligation of the debt issuer. When rating liquidity-supported debt, Fitch also requires an opinion that the liquidity facility is the legal, valid, binding, and enforceable obligation of the liquidity provider. These enforceability opinions must be based on the laws of the state under which the liquidity facility is, by its terms, governed. If the liquidity provider is a non-U.S. entity, Fitch requires an enforceability opinion from non-U.S., as well as domestic, counsel.

### ■ Conclusion

Insured floater structures provide debt issuers with an alternative method for accessing the bond market while eliminating their own credit risk from the transaction. Fitch has published these guidelines to inform market participants and other interested parties of the criteria that Fitch applies when rating insured floater transactions. Fitch welcomes questions or comments from industry participants.

Copyright © 2005 by Fitch, Inc., Fitch Ratings Ltd. and its subsidiaries. One State Street Plaza, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. All of the information contained herein is based on information obtained from issuers, other obligors, underwriters, and other sources which Fitch believes to be reliable. Fitch does not audit or verify the truth or accuracy of any such information. As a result, the information in this report is provided "as is" without any representation or warranty of any kind. A Fitch rating is an opinion as to the creditworthiness of a security. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed, suspended, or withdrawn at anytime for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from USD1,000 to USD750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from USD10,000 to USD1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of Great Britain, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.



Municipal Structured Finance  
Criteria Report**Guidelines for Rating Direct-Pay  
LOC-Supported Debt****Analysts**

Trudy Zibit  
1 212 908-0689  
trudy.zibit@fitchratings.com

Linda Friedman  
1 212 908-0727  
linda.friedman@fitchratings.com

Ronald McGovern  
1 212 908-0513  
ronald.mcgovern@fitchratings.com

Mario Civico  
1 212 908-0798  
mario.civico@fitchratings.com

Mary Jane Ziga  
1 212 908-0529  
maryjane.ziga@fitchratings.com

**■ Summary**

Municipalities, not-for-profit organizations, and for-profit corporations (together, issuer or issuers) seeking to improve market access, broaden investor base, and reduce borrowing costs often utilize irrevocable direct-pay letters of credit (LOCs) issued by commercial banks and other financial institutions (LOC providers) to enhance their capital market transactions. When a transaction is supported by an LOC, the primary source of bondholder security shifts from the issuer to the LOC provider.

When debt issued with direct-pay LOC support is structured according to the guidelines outlined in this report, Fitch Ratings assigns a rating to the issue based on the rating of the LOC provider rather than that of the issuer. Fitch's analysis of LOC-supported transactions is based on the following principles:

- LOCs must be irrevocable obligations of the LOC provider and obligate it to provide sufficient funds to make all required payments due to bondholders in a full and timely manner.
- Documents must clearly delineate and properly coordinate responsibilities among the LOC provider, the bond trustee, the paying agent, the remarketing agent, and the tender agent, as appropriate.
- The funds required to pay bondholders must be protected from any payment risks associated with the issuer.
- Bonds must be redeemed or purchased prior to any expiration or termination of the LOC.
- Bondholders must be shielded from any risks associated with the possible bankruptcy of the issuer.

**■ Basic Documents**

When rating LOC-supported transactions, Fitch reviews all the governing bond documents (whether an indenture, ordinance, or resolution); the credit facility (i.e. the LOC and reimbursement agreement); the remarketing agent and tender agent agreements, if any; opinions regarding the enforceability of the LOC; and bond counsel's legal opinion to ensure that responsibilities set forth in governing documents are legally valid, binding, and enforceable.

**■ Irrevocability**

Unlike lines of credit and other liquidity facilities, LOCs must be irrevocable obligations. The LOC provider may terminate the LOC only after it has provided funds to pay for the purchase, acceleration, or redemption of all secured bonds or notes.

# FitchRatings

## Public Finance

### ■ Sufficiency of Funds

LOCs must be sized to equal the amount necessary to support all covered payments on the bonds or notes. Thus, the stated amount of the LOC must cover full principal plus the amount of interest that would accrue during the longest covered interest period at the maximum interest rate allowed under the bond documents. In LOCs where interest is not immediately and unconditionally reinstated following an interest drawing, the reinstatement period must be taken into consideration and covered in the sizing of the interest component of the LOC.

The basic formula that Fitch uses to calculate required interest coverage can be summarized as follows: the maximum number of days that can accrue between interest payment dates plus the length of any reinstatement period following a regularly scheduled interest draw plus the maximum number of days from the end of the reinstatement period to the required mandatory purchase, mandatory redemption, or acceleration date.

If bonds are subject to mandatory redemption during the term of the LOC, the LOC also must be available to pay principal, interest, and premium, if any, due upon redemption. In addition, if the governing bond documents authorize optional redemptions, with or without premiums, preference-proofed funds sufficient to pay the redemption price must be available to the trustee, first from the LOC to maintain the direct-pay structure of the transaction or from another source. If the source of preference-proofed funds is not the LOC, the trustee should not send the optional redemption notice until such funds are on hand. Alternatively, bond documents may authorize a trustee to cancel an optional redemption if adequate preference-proofed moneys are not received prior to the redemption date. This option requires that holders be notified of the conditional nature of the redemption (see *Bankruptcy Concerns*, page 3).

When the LOC does not include sufficient funds to cover all possible interest rate determination modes, bondholders must be protected in the event of a total or partial conversion to the uncovered interest modes. Prior to any conversion of the bonds to an interest rate determination mode with a longer interest period than that initially covered by the LOC, Fitch requires that either the LOC coverage be increased or a substitute LOC, appropriately sized, be provided. Upon conversion of the interest rate mode to a longer mode or in the event a substitute LOC is provided,

the bond documents must provide for a mandatory purchase. In either circumstance, the bond documents may permit the bondholders to retain their bonds if Fitch provides affirmation that the rating will not be reduced or withdrawn as a result of such actions.

### ■ Delineation of Responsibilities

A bondholder's agent, such as a trustee, paying agent, or tender agent (hereafter referred to as trustee), has a fiduciary responsibility to act on behalf of bondholders when drawing on the LOC. The trustee must also have clear instructions to draw on the LOC to make timely payments to bondholders. Therefore, bond documents must clearly identify the trustee's responsibilities to seek payment from the LOC. Directions to the trustee in the bond indenture must match the provisions of the LOC and permit the trustee to draw on the LOC without requiring any indemnification or imposing any conditions. Neither the bond indenture nor the LOC may contain any extraneous conditions to be satisfied prior to seeking payment and providing funds under the LOC.

In assigning ratings to variable-rate demand obligations (VRDOs), Fitch reviews the purchase and remarketing mechanics specified in the transaction documents to ensure full and timely payment of the purchase price of all tendered bonds.

Purchases may be optional or mandatory upon the occurrence of specified events. Usually, bondholders deliver or tender their bonds to a tender agent, which may or may not be the trustee or paying agent. A remarketing agent is responsible for reselling or remarketing tendered bonds and transferring remarketing proceeds to the trustee or tender agent. If the remarketing agent fails to remarket all tendered bonds, the trustee must be directed to draw on the LOC to pay tendering bondholders the purchase price of the bonds, which usually equals principal plus interest accrued up to but not including the date of purchase.

When bonds are tendered and purchased with LOC funds, the bonds are pledged to the LOC provider and held at Depository Trust Corporation (DTC) in accordance with current industry practices (such bonds are typically held at DTC with the LOC provider having beneficial ownership of the bonds). The LOC provider reduces the amount available for future principal, interest, and purchase price payments by the amount of any purchase draw. The LOC provider's security interest in the bonds is not released until the bonds are remarketed, the LOC

# FitchRatings

## Public Finance

provider is reimbursed, and the LOC is fully reinstated in an amount sufficient to cover the remarketed bonds.

### ■ Protection of Funds

Once a payment is made under the LOC, the trustee applies the funds to make payments on the bonds. In the event the trustee holds LOC proceeds after a debt service payment date for bondholders that do not present their bonds for payment, such funds must be protected. Therefore, these funds must be held uninvested or invested in liquid and creditworthy instruments. Funds must also remain free from any liens of the trustee, the tender agent, or the remarketing agent.

### ■ Expiration, Termination, or Replacement of Credit Facility

Although irrevocable, LOCs often expire and may be terminated prior to the maturity date of the bonds they secure. Early termination events and expiration dates are specified in the LOC, and upon the occurrence of either, bondholder security will be altered. Fitch's rating on LOC-supported debt expires upon termination or expiration of the LOC. Therefore, bond documents must require that the purchase or redemption price of all bonds be paid with the proceeds of a draw under the terminating or expiring LOC.

Bond documents may provide an option to substitute the LOC without a mandatory tender of bonds if the trustee receives written notice from Fitch that the rating assigned to the bonds will not be reduced or withdrawn as a result of the substitution. Alternate or substitute LOCs may be authorized upon expiration or termination of the current LOC, as well as upon occurrence of other events such as a reduction in the rating of the LOC provider or at the borrower's election. Bondholders must receive prior notice of any proposed LOC substitution, whether or not their bonds will be subject to mandatory purchase.

### ■ Confirming LOCs

A confirming LOC may be utilized to enhance the rating of a bond issue when the LOC provider providing the underlying LOC is either unrated or rated too low to enhance market access. In confirming LOC structures, the timing and mechanics of remarketing, notification and draw times, and termination provisions have to be coordinated between the primary and confirming LOCs to meet the requirement for full and timely payment of amounts due on the bonds. When a confirming LOC structure meets Fitch's criteria, upon completion of

the review of all transaction documents, which must include the confirming LOC provider documents along with all the other basic documents noted on page 1, Fitch assigns the rating of the confirming LOC provider to the issue.

### ■ Bankruptcy Concerns

When a bond rating is based on the credit quality of the LOC provider, credit deterioration of the debt issuer or borrower of bond proceeds should pose no risk to bondholders. Direct-pay LOCs remain available to make payments to bondholders in the event of bankruptcy of the debt issuer or borrower of proceeds.

If an LOC is not sized to cover any premium due upon optional redemptions, funds used to make such payments must be sufficiently aged to meet the legal criteria of preference-proofed moneys. Under the U.S. Bankruptcy Code, payments made by debtors, other than municipalities, within periods ranging from 90 days to one year of bankruptcy filing (preference period) are deemed preferential. The relationship of the debtor and creditor and the applicability of certain state laws, which increase the minimum preference period to 123 days, determine the duration of the preference period. Fitch requires a minimum preference period of 123 days because, regardless of the debtor location, the filing of an involuntary bankruptcy petition by a creditor in a state with the longer statutory period may trigger application of that longer period. In addition, if the borrower of bond proceeds is a partnership, Fitch requires a one-year preference period. This extended preference period is needed because payments made by general partners on behalf of each other or of the partnership are considered by the U.S. Bankruptcy Code to be payments by "insiders," which may be recovered by a bankruptcy trustee when made within one year of a bankruptcy filing by the borrower or insider.

Fitch does not require legal opinions to address bankruptcy issues for payments on bonds made with LOC proceeds or remarketing proceeds, since payments made by a financial institution directly to a trustee for the benefit of bondholders, pursuant to the terms of an irrevocable LOC, are not considered payments by the debt issuer or borrower. Remarketing proceeds from non-insiders are not subject to recovery by the bankruptcy trustee.

### ■ Required Legal Opinions

Fitch requires the following legal opinions: an opinion of bond counsel that the bonds are the legal, valid, and binding obligation of the debt issuer; and an enforceability

opinion stating that the LOC is the legal, valid, and binding obligation of the LOC provider. The opinion also must state that the LOC is enforceable against the provider in all circumstances, except in the event of a bankruptcy (or other form of insolvency) of the LOC provider. These enforceability opinions must be based on the laws of the state under which the credit facility is governed. If the LOC provider is a non-U.S. entity, Fitch also requires an enforceability opinion from both foreign and domestic counsel.

#### ■ Conclusion

Fitch has published these guidelines to inform issuers and their financing teams of the criteria Fitch employs when reviewing and rating LOC-supported transactions. Direct-pay LOCs have been used for more than 20 years as a credit substitute for issuers seeking access to the bond markets without having to rely on their own credit rating. While this is a well-established market, as industry standards evolve, Fitch will ensure that its guidelines meet the needs of changing market practices and applications. Fitch welcomes any questions, comments, or suggestions.

Copyright © 2005 by Fitch, Inc., Fitch Ratings Ltd. and its subsidiaries. One State Street Plaza, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. All of the information contained herein is based on information obtained from issuers, other obligors, underwriters, and other sources which Fitch believes to be reliable. Fitch does not audit or verify the truth or accuracy of any such information. As a result, the information in this report is provided "as is" without any representation or warranty of any kind. A Fitch rating is an opinion as to the creditworthiness of a security. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed, suspended, or withdrawn at anytime for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from USD1,000 to USD750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from USD10,000 to USD1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of Great Britain, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.

## GFOA RECOMMENDED PRACTICE

### Debt Management Policy\* (1995 and 2003)

**Background.** Debt management policies are written guidelines and restrictions that affect the amount and type of debt issued by a state or local government, the issuance process, and the management of a debt portfolio. A debt management policy improves the quality of decisions, provides justification for the structure of debt issuance, identifies policy goals, and demonstrates a commitment to long-term financial planning, including a multi-year capital plan. Adherence to a debt management policy signals to rating agencies and the capital markets that a government is well managed and should meet its obligations in a timely manner.

Debt levels and their related annual costs are important long-term obligations that must be managed within available resources. An effective debt management policy provides guidelines for a government to manage its debt program in line with those resources.

**Recommendation.** The Government Finance Officers Association (GFOA) recommends that all state and local governments adopt comprehensive written debt management policies, and that governments review them at least annually and revise them as necessary. A Debt Management Policy should address:

- *Direct Debt* - debt payable from general revenues, including capital leases,
  - *Revenue Debt* - debt payable from a specific pledged revenue source,
  - *Conduit Debt* - debt payable by third parties for which the government does not provide credit or security,
  - *State Revolving Loan Funds and Pools*
  - *Other Types of Hybrid Debt* - debt payable from special revenues or containing other unique security pledges, and
  - *Interfund Borrowing* - loans for short-term cash flow needs.
1. **Debt Limits.** The Policy should define specific limits or acceptable ranges for each type of debt. Limits are generally set for legal, public policy, and financial reasons.
- a. *Legal limits* may be determined by:
    - State constitution or law,
    - Local charter, by-laws, resolution or ordinance, or covenant.
  - b. *Public Policy limits* can include:
    - Purposes for which debt proceeds may be used or prohibited,
    - Types of debt that may be issued or prohibited,
    - Relationship to and integration with the Capital Improvement Program, and
    - Policy goals related to economic development, capital improvement financings, tax increment financing, and public-private partnerships.
  - c. *Financial limits* generally reflect public policy or other financial resource constraints, such as reduced use of a particular type of debt due to changing financial conditions. Appropriate debt limits can positively impact bond ratings, if

the government demonstrates adherence to such policies over time. Financial limits are often expressed as ratios customarily used by credit analysts. Different financial limits are used for different types of debt. Examples include:

- *Direct Debt* can be measured or limited by the following ratios:
  - ✓ Debt per capita,
  - ✓ Debt to personal income,
  - ✓ Debt to taxable property value, and
  - ✓ Debt service payments as a percentage of general fund revenues or expenditures.
- *Revenue Debt* levels are often limited by debt service coverage ratios (e.g., annual net pledged revenues to annual debt service) or credit rating impacts (e.g., additional bonds should not lower ratings) contained in bond covenants.
- *Conduit Debt* limitations may reflect the right of the issuing government to approve the borrower's creditworthiness, the purpose of the borrowing issue, or a minimum credit rating. Such limitations reflect sound public policy, particularly if there is a contingent impact on the general revenues of the government or marketability of the government's direct debt.
- *Short-Term Debt Issuance* should describe the specific purposes and circumstances under which it can be used, as well as limitations in term or size of borrowing.

2. *Use of Derivatives.* The Policy should:

- Specify how derivatives fit within the overall debt management program.
- State the conditions under which derivatives can be utilized.
- Identify the types of derivatives that may be employed or are prohibited.
- Identify approach(es) for measuring, evaluating, and managing derivative risk, including basis risk, tax risk, counter-party risk, termination risk, liquidity renewal risk, remarketing risk, and credit risk.
- State the methods for procuring and selecting derivative products.

3. *Debt Structuring Practices.* The Policy should include specific policies regarding the debt structuring practices for each type of bond, including:

- Maximum term (often stated in absolute terms or based on the useful life of the asset(s)),
- Average maturity,
- Debt service pattern such as equal payments or equal principal amortization,
- Use of optional redemption features that reflect market conditions and/or needs of the government,
- Use of variable or fixed-rate debt, credit enhancements, derivatives, and short-term debt, and limitations as to when each can be used, and
- Other structuring practices should be considered such as capitalized interest, deferral of principal and/or other internal credit support, including general obligation pledges.

4. ***Debt Issuance Practices.*** The Policy should provide guidance regarding the issuance process, which may differ for each type of debt. These practices include:
  - Criteria for determining the sale method (competitive, negotiated, placement) and investment of proceeds,
  - Criteria for issuance of advance refunding and current refunding bonds,
  - Selection and use of professional service providers,
  - Use of comparative bond pricing services or market indices as a benchmark in negotiated transactions, as well as to evaluate final bond pricing results, and
  - Use of credit ratings, minimum bond ratings, determination of the number of ratings, and selection of rating services.
5. ***Debt Management Practices.*** The Policy should provide guidance for ongoing administrative activities including:
  - Investment of bond proceeds,
  - Primary and secondary market disclosure practices, including annual certifications as required,
  - Arbitrage rebate monitoring and filing,
  - Federal and state law compliance practices, and
  - Market and investor relations efforts.

**References**

- *A Guide for Preparing a Debt Policy*, Patricia Tigue, GFOA, 1998.
- *Benchmarking and Measuring Debt Capacity*, Rowan Miranda and Ron Picur, GFOA, 2000.

**Recommended for Approval by the Committee on Governmental Debt and Fiscal Policy, January 24, 2003.**

**Approved by the GFOA's Executive Board, February 28, 2003.**

\* This RP replaces the GFOA's RPs – Development of a Debt Policy and Analyzing Debt Capacity and Establishing Debt Limits.

### Using Variable Rate Debt Instruments (1997)

**Background.** Variable rate debt can be an important tool in managing a government's debt program. When issued prudently, variable rate debt can help lower the cost of borrowing and provide a hedge against interest rate risk. Interest rates on variable rate debt instruments are at the short end of the yield curve because they are periodically adjusted (e.g., daily, weekly, monthly) based on current market conditions. Variable rate debt is commonly issued in the form of variable rate demand obligations (VRDOs), which give investors the right to "put" securities back to the issuer at their discretion at specified future intervals.

When issuing VRDO bonds, an issuer will need to have a tender agent to repay principal and interest to investors who choose to put back their bonds to the issuer and a remarketing agent to find new investors to purchase these securities. Additionally, the rating agencies may require a liquidity provider to cover deficits that may occur if all bonds cannot be remarketed. Tax-exempt commercial paper programs can be structured to resemble longer-term variable rate debt, and generally have the same liquidity requirements as VRDOs. Issuers can also achieve the benefits of variable rate debt through fixed-to-floating interest rate swaps, which have risk characteristics. As a general rule, some rating agencies recommend that variable rate debt not exceed 10-20 percent of total bonds outstanding, although other factors may affect their evaluation of the amount they regard as acceptable.

**Recommendation.** The Government Finance Officers Association (GFOA) recommends that governmental issuers planning to issue variable rate debt carefully evaluate their objectives and consider how this debt will be managed over the long term. Issuance of variable rate debt should be guided by the government's overall financial and debt management objectives and its financial condition. In particular, an issuer should:

1. Review statutes or ordinances governing the issuance of debt to ensure that issuance of variable rate debt (including particular instruments) is permitted and to understand any conditions, such as amounts, interest rate ceilings, or requirements governing debt-related funds.
2. Ensure that the government's debt policy specifically addresses the use of variable rate debt, including goals to be achieved, permitted instruments, amounts that may be issued, and steps to minimize risk.
3. Consider the ability of the government to manage variable rate debt including staff requirements to monitor market conditions; record interest rate changes; make adjustments to budgets and financial plans as needed; and manage relationships with investors, liquidity providers, and remarketing agents.
4. Evaluate the impact on debt service requirements assuming different interest rate scenarios and develop appropriate contingency plans for a rising interest rate environment including setting aside reserves consistent



with applicable arbitrage regulations or purchasing hedging instruments. An issuer also should consider the impact of changing interest rates on rate covenants and its financial position.

5. Evaluate the total cost of issuing variable rate debt, including fees to tender agents, remarketing agents, and liquidity providers under expected and adverse scenarios (e.g., if tendered bonds cannot be immediately remarketed). If the issuer is considering an interest rate cap, the cost of purchasing the instrument also should be assessed in relation to interest rate risk exposure.
6. Evaluate the need for an externally provided liquidity facility. If needed, an issuer should undertake an evaluation of possible providers, including their credit rating, the impact of a possible change in this rating, and renewal provisions.
7. Develop a full understanding of the unique risks that arise when variable rate payments are realized through an interest rate swap, including counterparty risk, basis risk, rollover risk, and termination risk. Other GFOA recommended practices pertaining to the use of these products should be reviewed.

#### References

- "Variable Rate Debt and Minneapolis' Debt Management Policy," *Government Finance Review*, GFOA, April 1988.
- "Debt Markets and Instruments," *Local Government Finance: Concepts and Practices*, GFOA, 1991.
- "An Issuer's Perspective on Interest Rate Swaps," *Government Finance Review*, GFOA, October 1992.
- GFOA Recommended Practice, "Use of Derivatives by State and Local Governments," 1994.
- "Credit Impact of Short-Term and Variable-Rate Debt," *Standard & Poor's CreditWeek Municipal*, September 30, 1996.
- Dall W. Forsythe, "Managing Interest Rate Exposure: Some Simple Tools for Financial Managers," *Government Finance Review*, GFOA, August 1996.



## Government Finance Officers Association

### Use of Debt-Related Derivatives Products and the Development of a Derivatives Policy (2003 and 2005) (DEBT)

**Background.** The use of derivative products is becoming more prevalent in state and local governments' debt and risk management programs. A derivative is a financial instrument created from or whose value depends upon (is derived from) the value of one or more separate assets or indices of asset values. As used in public finance, derivatives may take the form of interest rate swaps, futures and options contracts, options on swaps and other hedging mechanisms such as caps, floors, collars and rate locks. Derivative products can be an important interest rate management tool that, when used properly, can increase a governmental entity's financial flexibility, provide opportunities for interest rate savings, alter the pattern of debt service payments, create variable rate exposure, change variable rate payments to fixed rate and otherwise limit or hedge variable rate payments.

Governmental issuers must learn about and understand the potential risks and rewards of derivative products in order to evaluate them properly as financing tools. Governmental issuers must understand fully the characteristics of derivative instruments, have the ability to determine a fair market price and be aware of the legal, accounting, credit and disclosure issues involved. These instruments should not be used for speculation, but only to manage risks associated with an issuer's assets or liabilities and only in conformance with financial policies that reflect the risk tolerances and management capabilities of the issuer.

**Recommendation:** The Government Finance Officers Association (GFOA) recommends that state and local officials to be cautious in the use of derivative instruments and to use them only when the officials have developed:

1. A sufficient understanding of the products. The GFOA encourages all financial officers to learn about the potential risks and benefits of using derivatives. A decision whether or not to use derivatives should be made on an informed basis. Training is essential both in evaluating the use of derivatives and in managing their use.
2. The internal staffing and expertise to manage and evaluate these products properly, either on their own or in combination with a swap or financial advisor. Government issuers must have in place:
  - a. Methods for measuring, evaluating, monitoring and managing risks associated with derivative products, including:
    - i. Basis risk – the mismatch between actual variable rate debt service and variable rate index used to determine swap payments. This risk can be managed through the creation of an interest rate reserve fund or conservative budgeting strategies.
    - ii. Tax risk – the risk created by potential tax events that could affect swap payments. Careful attention should be paid to tax event triggers in the underlying swap documents.
    - iii. Interest rate risk – how the movement of interest rates over time affects the market value of the instrument.
    - iv. Counterparty risk – the failure of the counterparty to make required payments. This is particularly important if an issuer has more than one swap with a counterparty and the documents contain cross-default provisions. This can be

addressed through the establishment of ratings thresholds, guidelines for exposure levels and, particularly, collateralization requirements.

- v. Termination risk – the need to terminate the transaction in a market that dictates a termination payment by the issuer. Market practice allows governmental issuers to limit the instances in which this can occur. This risk can also be mitigated through the identification of revenue sources for and budgeting of potential termination payments, structuring the swap so that bond proceeds can be used for termination payments and subordinating the lien status of potential payments.
  - vi. Market-access risk - the risk that a government will not be able to enter credit markets or that credit will become more costly. For example, to complete a derivative's objective, a new money issuance or a refunding may be planned in the future. If at that time the government is unable to enter credit markets, expected cost savings may not be realized while the issuer will continue to be subject to its obligations required by the derivative contract.
  - vii. Rollover or amortization risk - the mismatch of the maturity of the swap and the maturity of the underlying bonds or a mismatch in the amortization of the swap and bonds. This should be eliminated by making the maturity and amortization of the swap coterminous with those of the bonds.
  - viii. Credit risk – the occurrence of an event modifying the credit rating of the issuer or its counterparty. This should be addressed through minimizing cross defaults, the use of swap insurance and the favorable negotiation of credit event triggers in the underlying documentation.
- b. Methods for selecting and procuring derivative products, including when competitive bids and negotiated transactions are warranted, and knowledge of pricing conventions and documentation standards.
  - c. Guidelines governing the proper disclosure of material information relating to executed derivative products to the issuer's governing body, in financial statements, to the rating agencies, to investors in connection with bond offerings, and to the municipal secondary market. Internal disclosure should include information about legal authority, risks, guidelines and market value. Official Statement disclosure should comport with current market practice.
  - d. Procedures and personnel responsible for internally managing and monitoring the issuer's (i) obligations (also known as operational risk), such as monitoring rates, calculating and making payments, managing collateral, and budgeting and accounting for derivatives appropriately and (ii) exposure, such as counterparty credit, collateral posting levels, variable rate exposure levels and basis risk. Pursuant to applicable accounting requirements, these procedures must include the development of a methodology for providing periodic termination value analyses.
3. A comprehensive derivatives policy. A derivatives policy should include:
- a. Evidence of clear legal authorization to enter into such arrangements and guidelines for how derivative products fit within the overall debt management program.
  - b. A list of the types of derivative products that may be used or are prohibited.
  - c. The conditions under which these types of products can be utilized (*i.e.* bidding procedures, minimum benefit thresholds, terms of master agreements).
  - d. The maximum amount of derivatives contracts, or a means of determining such amount, *e.g.* by reference to floating rate assets.
  - e. Guidelines for selecting counterparties of high credit quality.

The GFOA recommends that all derivative transactions be documented using standardized forms, because standardized terms make it easier for market participants to analyze transactions, which minimizes costs. "Documentation in the municipal swap market is almost universally accomplished through the negotiation and execution of the forms of documents published by the International Swaps and Derivatives Associations, Inc. (ISDA)."<sup>1</sup> The GFOA also advises that many provisions in such forms are subject to negotiation and therefore recommends that finance officers have advisors familiar with such forms. Specifically, the provision of collateral by one or both parties to a swap under certain circumstances is determined at the time the swap is executed. The form of that potential collateral may also be decided at the point of execution or may be postponed until such collateral is required. Collateral is identified in a Credit Support Annex ("CSA"), and while it will add legal costs to the original transaction and has the potential of never being used, the GFOA recommends it be completed simultaneous with the execution of the swap to avoid having to negotiate collateral arrangements under distressed circumstances.

Once an issuer has adopted a derivatives policy and executed a derivatives transaction, the issuer should monitor and, to the extent possible, take action to limit its exposure to the risks described above. Because opportunities in the derivatives market change frequently, the GFOA encourages finance officers to keep abreast of such market conditions.

In September 2004, Standard & Poor's published its Debt Derivative Profile ("DDP"). The DDP outlines a rating process for municipal issuers of derivative products. According to the DDP, S&P will base each issuer's rating profile on four equally weighted components:

- Risk of termination or having to post collateral
- Counterparty credit quality and related contract termination risk
- Economic viability of derivative portfolio
- Management policies and procedures related to derivatives

S&P has indicated that the profile is a new process that may change over time. The other rating agencies currently incorporate their evaluations of issuers' derivatives exposures and safeguards into their credit ratings. It is recommended that issuers read and understand the most current material regarding the effect of derivatives on ratings prior to execution of a derivatives contract.

#### References:

- GFOA, *Elected Official's Guide to Debt Issuance*, Patricia Tighe and J.B. Kurish (May 2005)
- *Understanding Municipal Derivatives*, David Taub, *Government Finance Review* (August 2005)
- GFOA Recommended Practice: *Debt Management Policy* (2003)
- Fitch Ratings, *Guidelines for Interest Rate Swaps and Variable-Rate Debt* (May, 2005)
- Moody's Investors Service, *Swaps and the Municipal Market: The Impact of Swaps and FASB 133 on Municipal Credit Quality* (October 2002)
- Standard & Poor's, *Public Finance Criteria: Municipal Swaps* (November, 2004)

Approved by the GFOA's Executive Board on October 11, 2005.

---

<sup>1</sup> National Federation of Municipal Analysts, *White Paper on Disclosure for Swaps* (February 2004)



## ISSUE BRIEF

California Debt and Investment Advisory Commission

October 2004

# The Fundamentals of Interest Rate Swaps

Douglas Skarr  
CDIAC Policy Research Unit

## Introduction

Interest rate swaps have emerged from the domain of giant global organizations to become an integral part of the larger world of governmental and corporate finance.

The first interest rate swap was a 1982 agreement in which the Student Loan Marketing Association (Sallie Mae) swapped the interest payments on an issue of intermediate term, fixed rate debt for floating rate interest payments indexed to the three month U.S. Treasury bill. The interest rate swap market has grown rapidly since then.

Figure 1 – Global Interest Rate Swap Market

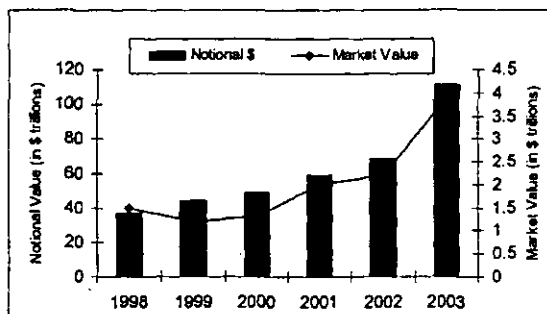


Figure 1 displays the market value and “notional” value of interest rate swaps outstanding from 1998 to the end of 2003. The notional value of \$111 trillion is huge, but somewhat misleading because in an interest rate swap, the notional value is merely a specified dollar amount on which the exchanged interest payments are based, and it never actually changes hands.

The actual market value (i.e. the value of transactions based on current interest rates) however is also a significant amount, at approximately \$4 trillion dollars.

This *Issue Brief* attempts to provide basic information regarding the use of interest rate swaps in municipal finance. It reviews data a financial manager would need to know when considering the use of interest rate swaps in the organization’s borrowing program. They include:

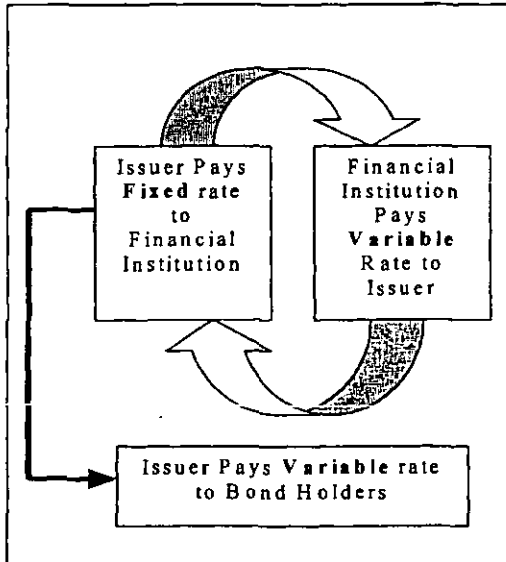
- Characteristics of an interest rate swap
- Pricing, costs, and the mechanics of terminating an interest rate swap
- Participants in an interest rate swap
- Typical uses of an interest rate swap
- Documentation, risks, and disclosure associated with an interest rate swap
- Effects on credit ratings
- Creating a swap management policy

## What are Interest Rate Swaps?

An interest rate swap is a contractual arrangement between two parties, often referred to as “counterparties” (see Figure 2). The counterparties agree to exchange payments based on a defined principal amount, for a fixed period of time. In an interest rate swap, the principal amount is not actually exchanged between the counterparties and therefore is referred to as the “notional amount” or “notional principal”.

Interest rate swaps do not generate new sources of funding themselves; rather, they convert one interest rate basis to a different rate basis (e.g., from a floating or variable interest rate basis to a fixed interest rate basis, or vice versa).

Figure 2 – Swap Process  
A Floating-to-Fixed Rate Swap



A floating to fixed rate swap allows an Issuer with variable rate debt to hedge the interest rate exposure by receiving a variable rate in exchange for paying a fixed rate, thus decreasing the uncertainty of an Issuer's future net debt service payments, after consideration of the swap and bond interest payments in aggregate.

A fixed to floating rate swap allows an Issuer with fixed rate debt to take advantage of variable interest rates. The Issuer's net debt service costs will be lower if the floating swap rate paid by Issuer to the Counterparty remains below the fixed swap rate received by the Issuer.

Either of the two structures noted above can be used in conjunction with existing debt or can be combined with newly issued debt. In addition, there is an increasing use of the

interest rate swap as a tool for asset and liability matching.

## Basics of an Interest Rate Swap

The payments on an interest rate swap are a function of the (1) notional principal amount, (2) interest rates, and (3) the time elapsed between payments. The counterparties to the swap agree to exchange payments on specific dates, according to a predetermined formula. Exchanges typically cover periods ending on the payment date and reflect differences between the fixed rate and the floating rate during the specific period. If the floating rate exceeds the fixed swap rate, the floating ratepayer pays the differential to the fixed ratepayer. On the other hand, if the floating rate index is less than the fixed swap rate, the fixed ratepayer pays the interest rate differential to the floating ratepayer.

Fixed and floating payments are netted against each other with a transfer of cash made by the owing party on the specified scheduled payment dates. Typically payments are determined on a monthly, semiannual, or annual basis.

As noted earlier, a swap does not involve an actual exchange of principal. In addition, the swap does not alter the Issuer's obligations, including debt servicing, to existing bondholders.

## Examples of Generic Interest Rate Swaps

### Example 1: Floating to Fixed Rate Swap

The Issuer issues \$10,000,000 of variable rate bonds. The variable rate bonds initially bear interest at 1.5 percent, but the rate can change weekly. The Issuer then enters into a swap contract with a financial institution (the "Counterparty"). Under the swap contract, the Issuer agrees to pay the Counterparty a fixed interest rate of 4.0 percent, and the Counterparty agrees to pay the Issuer a variable rate based on an index, which approximates the variable rate on the Issuer's

bonds. Both payment streams assume a notional amount of \$10,000,000. The net effect is that the Issuer has synthetically converted a variable rate obligation (the bonds) to a fixed rate obligation (the swap).

#### Example 2: Fixed to Floating Rate Swap

The Issuer issues \$10,000,000 of 4 percent fixed rate bonds. The Issuer then enters into a swap contract with the Counterparty. Under the swap contract, the Issuer agrees to pay the Counterparty a variable rate based on an index, and the Counterparty agrees to pay the Issuer the fixed rate on the Issuer's bonds. Both payment streams assume a notional amount of \$10,000,000. The net effect is that the Issuer has synthetically converted a fixed rate obligation (the bonds) to a variable rate obligation (the swap).

### **Pricing**

Pricing of an interest rate swap is often complex but can be broken down into two basic components:

- The "break even" rate, which represents the rate at which the swap dealer can create the swap itself, and
- The "markup" or profit added to the break-even rate by the swap dealer.

The individual swap dealer determines the break-even rate for any swap, using actively traded, liquid financial instruments, widely accepted modeling techniques, and dealer-to-dealer hedging. As a result, the break-even swap rate for any particular swap is basically the same for all swap dealers.

Subjectivity enters swap pricing when the swap dealer then adds their "markup" to the break-even rate. The markup represents the profit charged by the swap dealer for providing the swap. The amount of profit or markup charged is not standardized among the swap dealers, and as a result, varies greatly. As with the pricing of bonds and

other financial instruments, the pricing of swaps is a mix of objective financial analysis subjective economic considerations and degree of competitive forces. As a result, it is generally advisable for the Issuer to seek pricing from multiple swap dealers and to enlist the help of specialized advisory firms in evaluating swap transactions to ensure reasonable markups.

### **Costs**

The cost of executing an interest rate swap includes the markup charged by the Counterparty as noted above. However, obtaining the swap through a competitive bid can minimize this component of the swap price. In addition, the Issuer may hire a swap advisor to assist in securing the best terms and pricing for the swap either through competitive bid or a supervised negotiation. Swap advisory fees typically range from 1-5 basis points per year based on transaction size and complexity. Swap advisory fees can be paid by the swap Counterparty via an adjustment to the fixed swap coupon or directly by the Issuer. Legal fees typically include a one time flat fee to draft/review swap documentation. All fees should be fully disclosed in the swap documentation.

### **Terminating the Swap**

The market or replacement value of a swap fluctuates over time as interest rates change. Gains or losses based on changes in interest rates may become realized if an interest rate swap is terminated in advance of its contractual maturity date. The termination amount depends on interest rates in the prevailing market at the time of termination compared to those used in the swap contract. Early termination of a swap may occur based on a series of business, credit, legal and financial events negotiated between the parties.

An interest rate swap can be terminated at any time by giving notice to the Counterparty and agreeing to terminate the transaction on a market or replacement value basis. The termination amount (i.e., market value) will depend on the relationship between the fixed rate on the swap and current market rates for swaps having similar terms.

In general, if an Issuer is paying the fixed rate on a swap and interest rates decline, the Issuer will be required to pay a termination payment to terminate the swap. This compensates the Counterparty for the opportunity cost of losing the fixed rate payment at a rate that cannot be obtained in the current market. Conversely, if interest rates rise, the Issuer receives the market value of the remaining swap upon termination, reflecting the fact that it will be foregoing variable rate payments. A discussion of *termination risk* is provided on page 7 of this *Issue Brief*.

In addition, it should be noted that it is common practice for swap counterparties to add markup to the price quoted to the Issuer to terminate the swap transaction. This markup will increase the fee required by the Issuer to terminate the swap or decrease the fee the swap Counterparty is willing to pay to the Issuer to terminate the swap.

In practice, early termination fees can be significant and may eliminate any savings gained from terminating the swap. As a result, it is generally advisable for an Issuer to enlist the help of a specialized advisory firm in evaluating swap transaction terminations to ensure reasonable termination payments.

## Participants

Early interest rate swaps were brokered transactions where financial intermediaries would seek counterparties to the transaction among their customers. The intermediary collected a brokerage fee as compensation,

but did not maintain a continuing role once the transaction was completed. The contract was between the two ultimate swap users, who exchanged payments directly.

## Swap Provider (Counterparty)

Today the swap market has evolved into one that is dominated by large financial institutions acting as "swap providers" or "swap dealers". Swap dealers or providers act as "market makers" or intermediaries that stand ready to become Counterparty to swap transactions at any time (subject to certain credit, underwriting, and risk acceptance associated with a particular swap transaction). Because the swap dealer is the actual Counterparty to the Issuer, the Issuer needs to be comfortable with the financial condition of the swap dealer both initially and on an ongoing basis.

In the current market, major municipal swap providers or counterparties include the following four broad categories of financial institutions:

- Domestic Commercial Banks,
- Foreign Commercial Banks,
- Investment Banks, and
- Insurance Companies.

Counterparty selection criteria and methodologies can include:

Competitive Bid. The best price for any particular transaction is often obtained through the competitive bid process. Acceptable counterparties are identified, a credit package and draft document is developed and distributed, a solicitation form is created outlining the terms of the deal, an auction or bid is conducted, and the best price wins the deal.

Negotiated. The transaction is negotiated with a single party or parties. This will often be completed in conjunction with independent price verification by the



swap advisor to confirm to the Issuer that the price obtained is a reasonable price. This approach often makes sense when 1) conducting a competitive bid may create a disruption in the market, 2) the terms and conditions on a specific transaction are unique and not suited to a competitive bid, or 3) a particular firm has provided significant value to developing strategies that the Issuer believes are unique and beneficial.

Competitive Bid with Some Negotiated Aspects. The transaction is obtained through a competitive bid but a specific provider(s) is given an opportunity to match the best bid or provide some other concession to the bid process. This approach combines aspects of both the competitive and negotiated processes outlined above. As with the negotiated transaction, this often will be completed in conjunction with a price verification to confirm that the price obtained is reasonable.

Choosing a swap provider will depend on numerous factors including:

- Credit rating - typically AA or better;
- Price - a key component;
- Documentation provisions, including optional termination, transfer, collateralization; and
- Prior experience with similar transactions, level of experience, and past relationships with the Issuer.

#### Other Participants

In addition to the Issuer and the swap provider, participants in the swap process are similar to those involved in the issuance of a debt financing. They include:

Financial Advisor. Provides a review and analysis of financing alternatives being considered. Coordinates the efforts of

team members and the delivery of pricing analysis.

Swap Advisor. Provides a review and analysis of swap alternatives and can assist in the procurement of the swap, including conducting a competitive bid. Provides ongoing monitoring of swap market conditions, advises on rates and structure, and participates in reviewing the closing documentation. The swap advisor also can assist in the development of a Swap Policy and ongoing monitoring and swap valuation. Issuers should consider the need to obtain a "fair market certificate" from their swap advisor in regard to pricing, and fully discuss how such certification will be defined.

Swap/Bond Counsel. Ensures compliance with current bond resolutions and legal statutes along with preparation and review of closing documentation.

Swap Insurer. Insures scheduled payments from the Issuer to the swap Counterparty.

#### Documentation

The International Swaps and Derivatives Association, Inc. (ISDA) is the global trade association for the derivatives industry. The ISDA Master Agreement is the standard governing document used throughout the industry that serves as a framework for all derivative transactions between counterparties, including interest rate swaps. Swap documentation can be negotiated for individual swap transactions or can be negotiated once, prior to the first transaction, and used for multiple transactions.

Standard ISDA documentation for swaps usually consists of: (1) a master agreement, which is a preprinted and standardized form; (2) a schedule, which supplements and consists of negotiated amendments to the terms of the master agreement; (3) a credit

support annex (CSA), which addresses the complexities of the pledge and transfer of collateral or some other form of credit support; and (4) one or more transaction confirmations, which set forth the economic and legal essentials of particular transactions or "trades," drawing from standard sets of defined terms. Swap providers often require legal opinions or other certifications stating that an Issuer has the legal authority to enter into a swap.

Legal counsel and/or the swap advisor should review all swap documentation to confirm compliance with local and state law and to ensure that terms and conditions are commercially acceptable and represent the best terms and conditions available to the Issuer at the time. Failure to properly negotiate the documentation in a manner that is the most favorably available to the Issuer may lead to significant difficulties and costs to the Issuer during the life of the transaction.

### **Advantages to Using Swaps**

Benefits of using interest rate swaps may include:

- Lowering the cost of funding;
- Hedging interest rate exposure or increasing the certainty of future funding costs;
- Synchronizing cash flows to reflect asset/liability mix; and
- Broadening the Issuer's investor base.

Lowering Debt Service Costs. The Issuer may be able to lower debt service in periods of declining short-term interest rates by swapping fixed rate payment obligations for variable rate payments.

In exchange for assuming certain risks associated with a swap, it may be possible to achieve a lower fixed rate by issuing variable rate bonds and entering into a fixed rate swap agreement than could be achieved by merely issuing fixed rate bonds directly. Conversely,

in certain interest rate or credit enhancement environments, it may be more cost effective to issue fixed rate bonds and swap to variable rate payments than to issue variable rate bonds directly.

Hedging Against Variable Interest Rates. The Issuer may want to change the ratio of fixed rate to variable rate debt in its portfolio. Employing an interest rate swap, either fixed to variable in a decreasing rate market or variable to fixed in an increasing rate market, might be an appropriate method of changing the risk/return profile associated with its current and future debt needs.

Synchronizing Cash Flows to Reflect Asset/Liability Mix. Interest rate swaps also allow Issuers to structure their asset/liability mix to better reflect the timing of capital projects and investments. As cash flow needs change, interest rate swaps allow the Issuer to adjust the timing and level of net payments associated with existing bonds without going through the time, expense and approval hurdles necessary in issuing new or refunding existing debt.

Broadening the Issuer's Investor Base. The interest rate swap allows the Issuer to effectively convert the type of interest rate mode associated with a borrowing from one type to another. This may allow the Issuer to sell bonds in one market, for example in the variable rate market, even though the Issuer desires to pay a fixed rate. By adding the interest rate swap, the Issuer can convert its payments associated with the bonds to a fixed rate but utilize the variable rate market for the issue. This may allow the Issuer to access an investor base not previously used.

### **Risks Associated with Interest Rate Swaps**

The following risks are inherent in the typical swap contract:

Counterparty Risk is the risk that the Counterparty will not honor its payment obligations under the swap contract because the Counterparty has defaulted. If that happens, the Issuer no longer receives payments from the Counterparty. This risk can be addressed through the establishment of guidelines for exposure levels, ratings thresholds and, particularly, establishing collateralization requirements. Many entities attempt to mitigate this risk by swapping only with counterparties with ratings of AA or higher.

Basis Risk occurs in situations when the variable rate paid by the Issuer on its bonds is different than the floating interest rate received under the swap. Swaps commonly use an index such as the London InterBank Offer Rate (LIBOR) or the Bond Market Association (BMA) Index. Historically, 67 percent of LIBOR or 100 percent of the BMA index approximates an Issuer's cost of variable rate borrowing, but at certain times, the discrepancies between the actual cost of the Issuer's variable rate and the index rate it receives can be significant. In the event that an unfavorable significant difference occurs, the Issuer, which expected to pay a fixed rate on the swap, also must cover the "spread" or difference between the variable rate it pays and the variable rate it receives.

Termination Risk is the risk that a swap may terminate or be terminated prior to its planned expiration. This risk can be managed by assessing possible events that could trigger the early termination of a swap. If a swap is terminated earlier than expected due to the default of the Counterparty, the Issuer still may be required to make a termination payment. The termination payment is the economic value of the difference between current rates and the contracted swap rate for the remaining life of the swap.

Rollover Risk occurs when the term of the bond or asset being hedged does not coincide with the term of the swap. Rollover risk

refers to the possibility that the Issuer is unable to enter into a satisfactory new contract when the original one expires. For example, the Issuer may enter into a five-year swap contract after issuing bonds, but the bonds may have been issued for a 20-year period. Thus, after five years, a new swap would have to be initiated at prevailing rates for the remaining 15 years.

Amortization Risk is defined as the mismatch of the expiration of the underlying obligation and its hedge, the swap agreement. Amortization risk is the possibility that, as a result of an early redemption of the underlying bonds, the repayment schedule of the bonds differs from the underlying notional amount of the swap agreement. This risk will only arise if the Issuer wants to redeem the bonds ahead of schedule.

Tax Risk is the risk associated with changes to the marginal tax rate. Interest rates on tax-exempt municipal bonds are, in part, a function of the marginal income tax rate for current and potential bondholders. For example, as the marginal tax rate increases, municipal bonds become more attractive, and conversely, as tax rates fall, tax-exempt bonds become less attractive.

## Disclosure

Disclosure associated with municipal swap reporting has not been uniform in the past. However, an Issuer should carefully review disclosure requirements prior to entering into a swap. Currently, municipal Issuers reporting their financial results under the Financial Accounting Standards Board (FASB) guidelines are required to follow accounting and reporting standards of FASB Statement No. 133 (FAS 133) – *Accounting for Derivative Instruments and Hedging Activities*.

The larger share of the municipal market reports under the Government Accounting Standards Board (GASB). GASB has made

an effort to focus on this segment of the market through *Technical Bulletin No. 2003-1 Disclosure Requirements for Derivatives Not Reported at Fair Value on the Statement of Net Assets*. This bulletin became effective for fiscal years ending on or after June 15, 2003.

The GASB is currently undertaking a broader project on standards for reporting swaps, which is currently expected to result in a recommendation during 2005. A description of Technical Bulletin No. 2003 1 is available at the GASB website at [www.gasb.org](http://www.gasb.org).

In February 2004, the National Federation of Municipal Analysts (NFMA) released a "white paper" on issues related to swaps disclosure. It provides a comprehensive guide to appropriate practices for disclosure and provides details regarding swap disclosure.

NFMA considers the following disclosure items important in providing a comprehensive view of the Issuer's financial profile:

#### Risk Management Plan

- The overall risk management plan;
- How swapping helps accomplish risk management objectives;
- The process of monitoring and evaluation of swaps; and
- Discussion of specific risks associated with the transaction (see above discussion on risk types).

#### Debt Profile

- The current and future mix of fixed and variable rate debt;
- Derivatives usage and liquidity; and
- Priority of the swap periodic payments and termination payments relative to debt service obligations.

#### Swaps Summary

- Description of swap objectives (e.g., hedging tool for investments or debt);

- Listing of all individual swaps; and
- Transaction summary listing notional amounts, Counterparty, termination dates, and bonds, if any, linked to the swap.

#### Significant Terms

- Underlying indexes or interest rates, including terms such as caps and collars;
- Notional, face, or contract amount dollar amount;
- Net cash flow should be disclosed in addition to the debt service payments of the associated debt;
- Effective start and termination dates;
- The amount of cash paid or received when the swap was initiated; and
- The fair market value of the swap at the reporting date, and if that fair market value is based on other than quoted market prices, the method and significant assumptions to estimate.

The administrative workload for monitoring swaps and preparing disclosure should not be taken lightly.

#### Credit Rating Impact

The major credit rating agencies consider interest rate swaps when making credit rating decisions. The implementation of an interest rate swap, in isolation, does not necessarily have an impact on ratings, either positive or negative. The rating agencies are most concerned with the Issuer's understanding of how interest rate swaps fit within the overall risk management program.

Rating agencies expect Issuer officials to be able to:

- Present their overall asset liability management/policies;
- Explain the reason for entering into the swap agreement;
- Explain the risks and benefits in simple terms, including: providing interest expense and cost exposure figures under

various interest rate scenarios, identifying the source of payment under adverse circumstances, and knowing the costs, benefits, and risks of alternative interest rate scenarios;

- Understand obligations under the swap;
- Comprehend the Master Trust Indenture implications; and
- Prepare and provide ongoing disclosure information to bondholders and the rating agencies.

## Swap Policy

The purpose of the swap policy is to establish guidelines for the execution and management of the swap program. The swap policy confirms the commitment of management, staff, advisors, and other decision makers to adhere to sound financial and risk management practices, including achieving the lowest possible cost of capital within prudent risk parameters. Issuers should review, analyze, and modify swap policies to include the following:

**Overall Strategy.** Describe how and why swaps will complement the overall debt management plan. A key ingredient to the overall strategy is to prohibit swaps to be used for speculative purposes.

**Authorization.** Provide information on the types of swaps allowed and who has the authority to approve their use.

**Risk Analysis.** Requires a comprehensive risk analysis of individual swaps and their impact on the total debt portfolio. This would include a detailed analysis of Counterparty, basis, termination, amortization, and tax risks described earlier in this issue brief.

### Third Party Relationships/Bid Process.

Dealings with banking partners should be structured and executed in a manner consistent with standing practices for procuring investment banking and other

similar services, so as to achieve the highest level of service at the best available terms.

### Monitoring, Reporting and Disclosure.

Documents should follow ISDA guidelines and be prepared and updated to provide accurate and appropriate information to credit rating agencies, bondholders, and the Issuer's governing body.

The Government Finance Officers Association (GFOA) issued a recommended practices document titled *Use of Debt Related Derivatives Product and the Development of a Derivatives Policy* in 2003 that outlines many of these elements.

Issuers should assess the monitoring and disclosure workload and system requirements as part of developing a swap policy.

## Conclusion

Entering into an interest rate swap may be appropriate for an Issuer in certain situations; however, the Issuer should carefully consider the risks and rewards of such an agreement.

Below are some basic tenets to assist Issuers in determining if interest rate swap agreements are appropriate for their situation.

### **1) Swaps are complicated and involve risks. Know what you are buying.**

If the Issuer does not fully understand the workings of a particular interest rate swap or its effect on the Issuer's debt portfolio in different interest rate environments and market conditions, the swap contract should not be undertaken. While interest rate swaps may be legally authorized or permitted by statute, they are not appropriate for all situations. Issuers should make independent, informed decisions about the suitability or appropriateness of the product for any specific purpose. They should not rely solely on the swap provider to make this determination. The goals of the swap

provider and the Issuer can be very different. Skilled swap advisors are available to help the Issuer through the process.

Issuers should understand the risks associated with swaps before implementing them, and should evaluate whether the risks are consistent with their mandate to manage public funds prudently and preserve capital.

## **2) Recruit and work with experienced professionals. Experience Counts.**

The complexity and potential financial exposure, along with the myriad of risks associated with interest rate swaps, necessitate strong consideration of the team working with the Issuer. Interest rate swaps carry a high level of risk associated with the benefits provided.

It is very important that the Issuer not only understands the risks, but also takes every step necessary to mitigate these risks, while being compensated accordingly. This requires an experienced and seasoned team of professionals that are versed in current market practices and that can be relied upon for sound advice and counsel.

## **3) Adopt a written Swap Policy.**

Issuers should develop and adopt a Swap Policy that details and clarifies objectives and the procedures and constraints necessary to reach those objectives. A swap policy set forth in adequate detail, combined with appropriate controls, can guide the activity of treasury officials, financial advisors, credit rating agencies and bondholders. All swap policies should include guidelines on procurement, adequate controls, monitoring procedures, limits on overall swap levels, and reporting requirements to the governing body or officials ultimately responsible for performance.

## **4) Develop comprehensive controls and oversight and implement them.**

Issuers should implement adequate controls and oversight to ensure that financing decisions are made within the parameters of the established swap policy. Issuers also should establish a reporting and review process. Financing decisions should be closely reviewed by financial management and effectively communicated to the appropriate government body. The Issuer should monitor under the strictest accounting controls and best practices.

New and complex financial strategies are constantly being created to meet Issuers' needs. Treasury officials should incorporate new products into their debt strategy only if they have the time and commitment to adequately understand and monitor the product. They must have the staff to monitor the debt instruments and related risks and be able to respond to changing financial conditions.

\*\*\*\*\*

*The following provides information on the California Code Sections that addresses the authority to enter into interest rate swaps and an abbreviated glossary of swap related terms.*

### **Authority to Issue Interest Rate Swaps (California Government Code Section 53534)**

"Any provision of law to the contrary notwithstanding, a city, county, or city and county may enter into contracts commonly known as "interest rate swap agreements" or "forward payment conversion agreements" with any person providing for the exchange of payments between the person and the city, county, or city and county, including, without limitation, contracts providing for the exchange of fixed interest payments for floating

payments or floating interest payments for fixed payments, or a combination thereof. The contracts may be made upon the terms and conditions established by the legislative body of the city, county, or city and county. The authority conferred by this section includes the authority to enter into any and all contracts incident to the exercise of the authority conferred by this section including, without limitation, contracts to obtain credit enhancement devices and contracts for the performance of professional services. However, these contracts may be made only if all securities or bonds included in the contracts are rated in one of the three highest rating categories by two nationally recognized rating agencies selected by the legislative body of the city, county, or city and county, and if there has been receipt, from any rating agency rating the bonds, of written evidence that the contract will not adversely affect the rating”.

Additional Government Code Sections References include 5900 – 5909, 5920 – 5924 53530 – 53534, 63021 – 63028, and Public Utilities Code Section 12871 – 12875.

### Selected Glossary of Terms

**BMA Index** – The Bond Market Association (BMA) Municipal Swap Index is the principal benchmark for the floating rate payments for tax-exempt Issuers. The BMA Index is a national rate based on a market basket of approximately 200 high grade, seven-day tax-exempt variable rate issues of \$10 million or more.

**Counterparty** – A party in a derivative transaction.

**Hedge** – A method of reducing risk by making arrangements (swap) designed to offset the risks of existing contracts (bonds).

**London Inter Bank Offered Rate (LIBOR)** – The primary fixed income index reference rate used in the European financial markets.

Most taxable floating rates are quoted as LIBOR plus or minus a spread.

**Net Present Value (NPV)**– The expected value of a future cash flow or stream of cash flows discounted to the present at an appropriate interest (i.e., discount) rate. Due to the “time value of money” one dollar in the future is not worth one dollar today. The NPV describes how much one dollar in the future is worth when discounted to today’s dollars.

**Notional Principal** – The nominal value used to calculate swap payments and on which many other risk management contract payments are based. In an interest rate swap agreement, each period’s rates will be multiplied by the notional principal amount to determine the value of each Counterparty payment.

**Plain Vanilla** – A reference to a standard financial instrument with few or no unusual or unique features. The unusual or unique features usually are added to financial contracts to allow the contract to appeal to the interests or needs of a specific Issuer or investor. Plain vanilla is designed to allow for a much broader appeal.

**Swap Rate** – The market interest rate on the fixed rate side of a swap. At the time the swap is initiated, the swap rate will typically be the same as the fixed rate payment (adjusted for any negotiated premium or discount).

\*\*\*Special thanks to Phil Murphy and Chris Winters of Winters & Co. Advisors, LLC, Brian Mayhew of the Bay Area Toll Authority, and Roger Davis of Orrick, Herrington & Sutcliffe for their review, suggestions and input in producing this issue brief.